THE CONCEPT OF WHOLE-DOLLAR ACCOUNTING AND ITS POSSIBLE APPLICATION IN THE NAVY

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ABSTRACT

TITLE: The Concept of Whole-Dollar Accounting and Its Possible Application in the Navy

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PROBLEM: The concept of accounting in whole dollar amounts has been employed by certain segments of private industry since 1927 with considerable success. The concept has also been used by the Post Office Department and the Naval Research Laboratory, Washington, D.C. since the mid fifties. Basically, the concept is simple - the cents are not disregarded in their entirety, but are rounded off into whole dollar amounts.

Each year greater pressure is placed upon the Department of Defense for greater economy and more efficiency, and accordingly there have been demands for more financial controls. To effect economy and efficiency, the Navy has applied modern management techniques, installed automatic data processing system and employed work simplification methods to all parts of the Navy management field including the area of accounting. In the accounting field however, the basic ingredients of dollars and cents have not been considered. By accounting in whole dollars, economy and efficiency of operations can be obtained and accordingly the concept of whole-dollar accounting should be considered for possible application in the Navy.

ORGANIZATION OF THE STUDY: The paper discusses the history of the whole-dollar accounting concept and its applications in private business and government. The advantages and disadvantages of the concept are discussed, as well as the legality of the concept as applied to government accounting. Finally a discussion is presented regarding the applicability of the concept to Navy accounting.

SUMMARY: The concept of whole-dollar accounting has been employed successfully for years by such organizations as the Bethlehem Steel Corporation, the Dravo Corporation, Time Incorporated, the Ashland Oil and Refining Company, the Colgate-Palmolive Company, the Post Office Department, and the Naval Research Laboratory of Washington, D.C. No unsuccessful applications were noted. The legality of the concept in government accounting has been established by the Comptroller General's approval of the implementation of the concept at the Post Office Department.

The advantages of the concept include saving in time and effort, increased productivity, improved quality of work, and higher morale. The disadvantages are minor. The concept is a work simplification technique which applicable to Navy accounting and should be considered for implementation.

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CHAPTER I

INTRODUCTION

The Need for the Study

Congress and the American taxpayer are greatly concerned with the continuing increase of the costs of government and particularly those of the Department of Defense. Since World War II the gradual escalation of costs has resulted in the Department of Defense budget amounting to half the Federal budget and nearly one-tenth of the gross national product of the nation. The nation is, therefore, justified in its demands for prudent and economical management of this large segment of its expenditures.[1] Accordingly, each year greater pressure is placed upon the Department of Defense for greater economy and more efficiency through improved management and in particular, financial management.

Numerous studies concerned with the improvement of financial management have been conducted in the Department of Defense during the past two decades. As a result, many improvements have been made in the areas of accounting, budgeting, auditing, and progress and statistical reporting. In the Navy, some of the major

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[1]John H. Dillon, Review of Management of the Department of the Navy, (Washington, D. C.: Navy Department, 1962), p. 4.

improvements were: The Office of the Comptroller of the Navy was established in 1950 to formulate principles and policies and prescribe procedures in the areas of financial management so that management with efficiency and economy would result. Comptrollers were established at local shore commands. Industrial and commercial types of naval activities were converted to working capital fund financing and accrual type accounting. The budget process has been changed with presentation to Congress since 1951 on a performance basis. More recently budgets have been developed as program packages, and the accounting system has been expanded and improved.

Improvements in the Navy accounting system have been made through revised accounting procedures, utilization of automatic data processing systems, revising and eliminating reports, and consolidating accounting functions at field activities. So far though, the Navy has not considered the basic ingredient in all the accounting records and reports--the monetary amounts represented in dollars and cents.

In the interests of promoting greater economy and efficiency, every modern management technique should be studied for possible application in the Navy. One such technique in the field of work simplification and its application to the accounting operation is that of accounting in whole dollar amounts rather than in dollars and cents. The practice of not accounting for the cents has been

used in private industry for more than thirty years. The cents are not disregarded in their entirety, but are either accounted for separately or are rounded off into whole dollar amounts. The concept has many labor saving aspects which could well be utilized to good advantage in a big business organization such as the Navy.

There is a need to make a review of the possibilities and the desirability of the concept of whole-dollar accounting. The concept could prove to be applicable to the Navy accounting and supply systems, and thereby provide management with another management tool.

Scope of the Study

This paper will endeavor to discuss the application of whole-dollar accounting in private business and in government. The advantages and disadvantages of the concept will be discussed as well as the legality of the technique in government accounting. Finally, a discussion of the concept's applicability to Navy accounting.

Methodology of the Study

Information pertaining to the application of whole-dollar accounting in private industry contained in this paper has been obtained through library research and correspondence with a dozen business concerns that are utilizing the concept. Personal

interviews with personnel of the Post Office Department and the Naval Research Laboratory were conducted concerning the application of the concept in their accounting operations. Library research and personal interviews with personnel of the General Accounting Office were employed to determine the legality of the concept in government accounting. Information regarding the Navy supply and accounting has been obtained through library research, personal interviews and personal experience.

Terminology

The system of rounding money amounts into whole dollar amounts for accounting purposes has been referred by various terms: whole-dollar accounting, penny elimination, centsless accounting, pennyless accounting, and even, controlled tolerance accounting. For purposes of consistency the concept will be referred to as whole-dollar accounting throughout this paper.

CHAPTER II

THE CONCEPT OF WHOLE-DOLLAR ACCOUNTING

Accounting is a profession in which a millionth of a part receives just as meticulous attention as the part itself. Accountants work as much overtime attempting to locate a two cent error which might have been mechanically created as they do for a two thousand dollar one. Doctors and engineers concern themselves with infinitesima quantities as the milligram, but not when they are dealing in metric tons.[1] Many accountants have an inherent belief in and a desire to balance out "to the penny" and to calculate units cost and prices to several decimal places or significant figures with the probably mistaken idea of achieving accuracy or a truer presentation of facts. When one reviews the sources of many accounting entries or the factors upon which a standard cost or a material price is based, it is readily evident that there are estimates and assumptions made in determining the final figures. From this evidence it can be safely said that a large proportion of our accounting figures are carried out to a point beyond that required for significant or reasonable

[1] Raymond J. Barber, Jr., "Does Your Accounting Make Cents?," National Association of Cost Accountants Bulletin, (September, 1947), p. 26.

accuracy.[2]

If the cents could be eliminated from accounting entries, it can readily be imagined that added efficiency could be obtained through savings in time, space and headaches.

The History of the Concept

F. A. Shick is credited with being the pioneer in whole-dollar accounting. As the Comptroller of the Bethlehem Steel Corporation, Mr. Shick proposed and installed the concept of whole-dollar accounting in 1927. Cents were eliminated from all accounts except accounts receivable, accounts payable, cash and their controlling accounts. The original instructions issued in 1928 are still in effect with only one minor change concerning the Merchandise Sales Accounts being made in over three decades.[3] A copy of Bethlehem Steel Corporation's Accounting Order Number 9 on the subject "Elimination of Cents from Accounting Records" is included as Appendix A. This accounting instruction is the only internal directive which the corporation has concerning the technique.

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[2]Rawn Brinkley, "Calculating to Significant Digits Only," National Association of Cost Accountant's Bulletin, (March, 1950), p. 899.

[3]Florence A. May and Herbert F. Klingman, Whole-Dollar Accounting, (New York: Controllership Foundation, 1957), pp. 51-53.

Even though the concept of whole-dollar accounting was a success at Bethlehem Steel from the start, it has been slow in being adopted as a standard practice by accountants. There was no nationwide dissemination of the concept until Mr. Shick wrote an article on the subject in the Journal of Accountancy in November, 1941.[4] Prior to the article one of the earliest articles noted on the elimination of cents was an editorial in the Journal of Accountancy in 1937, but in a very limited manner. The editorial noted that there had been renewed discussions of the omission of fractional parts of the dollar from balance sheets, statements of income and other financial statements as a means of simplifying the preparation of such statements and their interpretation.[5]

In a subsequent issue of the Journal of Accountancy, E. J. Greaney stated in the correspondence section that he hoped the Institute would not advocate the suggested practice.[6] This opinion apparently was held by the great majority of accountants and comptrollers even well into the forties, for the majority of the financial statements published were detailed down to the penny.

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[4]F. A. Shick, "The Elimination of Cents from Accounting Records," The Journal of Accountancy, (November, 1941), pp. 400-403.

[5]"Elimination of Cents," The Journal of Accountancy, (August, 1937), p. 92.

[6]E. J. Greaney, "Elimination of Cents," The Journal of Accountancy, (November, 1937), pp. 299-300.

The editor of The Journal of Accountancy pursued the subject of reporting in whole dollars in an editorial in the October, 1941 issue, and noted one of the most sensible arguments against reporting in dollars and cents. He commented that the figures on financial statements are not mathematically exact figures but rather many are based on opinions and estimates. The inclusion of odd dollars and cents gives reports and statements an illusion of exactness,especially when totals amount to thousands of dollars. The editor lamented that many accountants would turn pale at the thought of omitting the last figures on balance sheets and income statements.[7] Gradually over the years the accountants' attitude for the need for purported accuracy in financial statements changed. By 1957, when the Controllership Foundation made a survey of 420 companies' reporting practices, 87 percent of the companies were preparing financial statements in whole-dollars.[8]

Mr. Shick's article in November, 1941 was fairly detailed in the mechanics of the use of whole-dollar accounting in the entire accounting system of a large corporation. With fourteen years of successful operations utilizing the whole-dollar accounting concept behind Mr. Shick's article, it would appear that some comptrollers

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[7]"No Sense in Cents," The Journal of Accountancy, (October, 1941), p. 292.

[8]May and Klingman, loc. cit., p. 42.

and accountants would at least try the concept in limited applications. The article was published just prior to World War II and during the war years and the years subsequent comptrollers were too busy or too short-handed to attempt to implement studies regarding any new accounting concepts, especially ones that were radical and might prove troublesome.[9]

In 1947, Raymond J. Barber, Jr., the Assistant to the Controller of the Goodall-Sanford Corporation, Sanford, Maine wrote the second significant article in the National Association of Cost Accountant's Bulletin.[10] The article discussed the advantages of the concept and some of the suggested disadvantages, along with comments on the use of the concept at the Goodall-Sanford Corporation.

By the late forties and the early fifties, interest in work simplification methods was increasing as companies entered the post war prosperity period, and accordingly many articles were written on the whole-dollar accounting concept. The articles cited actual successful applications of the concept or were editorials which urged the adaption of the technique. An editorial in the February 11, 1950 issue of Business Week cited the application of the concept at the Dravo Corporation six months previously which

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[9]Robert H. Birkhold, "Penny Elimination," The Controller, (April, 1952), p. 163.

[10]Barber, loc. cit., pp. 26-35.

resulted in a reduction of nine percent of the accounting payroll.[11] Later the same year, L. F. Adams, an auditor in the Dravo Corporation, who had implemented the concept, wrote an article on the utilization of the concept at Dravo in the National Association of Cost Accountant's Bulletin.[12] While discussing some of the possible limitations of whole-dollar accounting, Mr. Adams commented that "tax collectors will continue to exact their pound of flesh down to the last ounce."[13]

Needless to say, Mr. Adams was not a prophet, for in 1954, legislation was passed authorizing federal internal revenue returns to be made in whole-dollar amounts.[14] The adaption of the whole-dollar concept in Federal income tax accounting was primarily due to the efforts of a Boston public accountant, Walter Dewey, who conducted a one man crusade. While preparing income tax returns on incomes, approximating 100 thousand dollars, for some of his clients, Mr. Dewey realized that very large savings in time and trouble could be obtained by preparing the tax forms using rounded off dollar amounts. He visited the Internal Revenue Department and talked to individual businessmen and business organizations.

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[11] "Centsless Bookkeeping Saves Dravo Money," Business Week, (February 11, 1950), p. 26.

[12] L. F. Adams, "The Practice of Penny Elimination," National Association of Cost Accountant's Bulletin, (April, 1950), pp. 957-66.

[13] Ibid., p. 959.

[14] U. S. Title 26, Internal Revenue, (1954), Sec. 6102.

In April of 1950, he met with Colin F. Stam, Chief of Staff of the Joint Committee on Taxation. The recommendation that the system be adopted in Federal income tax accounting was the result.[15]

During this period many large companies adopted the concept as noted in Table 1.

The first agency in the U. S. Government to adopt whole-dollar accounting in its accounting system was the Post Office Department in 1953. After carefully investigating the concept, the department promptly accepted it as a means of improving service and lowering costs. Postmaster General Arthur E. Summerfield explained,

> In our dealings outside the department, we will still have to use pennies, but for all purposes within the department in recording, posting, and preparing trial balances and financial statements; budgetary work; and controlling allotments and expenditures, we will round amounts to the nearest dollar.[16]

Benjamin Wostein, then the Director of the Accounting Division, implemented the concept, not only in the headquarters in Washington, D. C., but also in 3,500 stations and many more sub-stations and branches throughout the nation. Cents are eliminated from all budget reports and all accounts not involving a third person, with one exception. In one instance even dealings with a third person

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[15] John Harriman, "Goodby Pennies--Business Considering Dollar Policy to Eliminate Cents," Boston Sunday Globe, (March 14, 1954), p. D-1.

[16] "Pennyless Bookkeeping Solves Accounting Delays," American Business, (November, 1954), p. 13.

TABLE 1

COMPANIES ADAPTING WHOLE-DOLLAR ACCOUNTING DURING PERIOD 1947-1954[a]

Company	Address	Year Concept Adapted
Alan Wood Steel Co.	Conshohocken, Pa.	1954
Allied Stores, Inc.		1953
Aluminum Company of America	Pittsburgh, Pa.	1954
Armco Steel	Middletown, Ohio	1952
Ashland Oil & Refining Co.	Ashland, Kentucky	1951
Central Soya Co., Inc.	Fort Wayne, Indiana	1947
Cleveland Electric Illuminating Co.	Cleveland, Ohio	1952
Colgate-Palmolive Co.	New York, N. Y.	1952
Dravo Corporation	Pittsburgh, Pa.	1949
Esso Standard Oil Co.		1952
F. R. Lazarus & Co.	Columbus, Ohio	1951
Johns-Manville Sales Corporation	New York, N. Y.	1951
Lever Brothers Corporation		1950
Max Factor of Hollywood	Los Angeles, Calif.	1953
Miles Laboratories		1951
Minneapolis Star & Tribune	Minneapolis, Minn.	1953
Pan American World Airways, Inc.	New York, N. Y.	1951
Surface Combustion, Inc.	Toledo, Ohio	1952
Syracuse Supply Co.	Syracuse, N. Y.	1954
Time Incorporated	New York, N. Y.	1950

[a]Information has been gathered from several of the references cited in the bibliography.

are conducted in whole dollars. Cash deposits to banks are made in whole dollar amounts only, by over six thousand reporting units across the country.

Mr. Wostein, in a recent interview described the operation of whole-dollar accounting in the Post Office Department after ten years as more a philosophy than just a concept.[17] Small penny overages and shortages of window clerks in post offices are being excused rather than the clerks being held accountable and trying to effect a time-consuming recheck. Distribution of sheets of stamps is made in whole sheets only, down through the Post Office Department to the window clerks. Postal units are now estimating postage usage rather than making detailed counts of the number of pieces. Reports are submitted to Congress rounded off to millions in a $2.5 billion budget. Mr. Wostein estimated savings in millions of dollars since they have applied the "philosophy" through the department.

Prior to the Post Office Department embarking on Whole-dollar Accounting, an article on the concept practiced by the Dravo Corporation appeared in the Bureau of Supplies and Accounts Newsletter in February, 1951. The author, who was not identified, stated that the Bureau of Supplies and Accounts of the Navy Department was working out the practical obstacles to adoption of

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[17] Interview with Benjamin Wostein, Director of Postal Rates Division, U. S. Post Office Department, February 7, 1964.

the rounded dollar in areas other than stores accounts and military pay.[18] No additional information could be obtained as to what the results of the study were or who conducted it.

The second agency of the U. S. Government to adopt the concept of whole-dollar accounting was the Naval Research Laboratory, Washington, D. C. E. H. Breed, the Comptroller, directed a feasibility study of the concept in 1955 and implemented the technique the same year with the approval of the Comptroller of the Navy. (The letter requesting authority to utilize the concept at the Naval Research Laboratory and the Navy Comptroller's letter approving the implementation of the concept on a trial basis are included in Appendix B.) The following year Mr. Breed advised the Comptroller of the Navy of the successful employment of the concept (see Appendix B) and requested final approval.

Mr. Breed stated that he first learned of the concept as a public accountant in California in 1940 when the President of his firm directed the installation of the concept in several firms on the West Coast. He felt that the concept would be ideally suited to the cost accounting performed by the Naval Research Laboratory. The concept has now been utilized at the Naval Research Laboratory on all internal accounts for the past nine years.[19]

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[18]"No Cents May Save Us Dollars," The Bureau of Supplies and Accounts Newsletter, (February, 1951), p. 8.

[19]Interview with E. H. Breed, Comptroller, Naval Research Laboratory, Washington, D. C., April 28, 1964.

In 1957, the Controllership Foundation, which is a research group for the Controllers Institute of America, published a report on the concept of whole-dollar accounting. The study included a collection of case studies of actual experience with the concept in several large, medium and small companies.[20] In discussing the concept, the foundation noted that whole-dollar accounting is designed to increase productivity or reduce cost in the important area of the accounting department and that it is a common sense measure designed to eliminate unnecessary work and to emphasize what is important.[21]

With the advent of electronic computers in the latter part of the fifties, the emphasis on work simplification shifted to that of speed in processing. Interest in whole-dollar accounting apparently faded for no additional articles on the subject were published in the professional journals and bulletins during this period.

Finally in the sixties with the computer becoming common place in business and with information and paper flow increasing at a tremendous rate, the need for efficiency in operations is again gaining attention. Two major problems that develop with computer installations are the storage capacity of the computer and

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[20] May and Klingman, loc. cit., pp. 49-270.

[21] Ibid., p. 7.

the conversion of source data into a form that can be accepted by the computer.[22] Whether accounting records are maintained on the computer or just processed by the computer, the concept of whole-dollar accounting can be used to great advantage in reducing the number of storage spaces required, thus actually increasing the capacity of the computer. Converting source data into a form acceptable by the computer is normally one of the slowest steps in the application of automatic data processing systems. Initially the step usually consists of keypunching information into electric accounting machine cards for processing or later conversion to magnetic or paper tape. By eliminating the cents from the source accounting documents, a significant number of keypunch strokes can be saved and processing time speeded up. In addition, the probability of introducing errors is reduced.

In a recent interview, Edward J. Mohoney, an Associate Director of the Accounting and Auditing Policy Staff of the General Accounting Office, who is concerned with the application of data systems in government, stated that in his opinion whole-dollar accounting is a valuable work simplification tool that could be used to great advantage in the application of data processing in the accounting field. Mr. Mohoney mentioned that recently he had

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[22]"Source Data Automation Program," Data Processing for Management, (September, 1963), p. 37.

discussed the possibility of using the whole-dollar concept with the personnel of the Social Security Administration Data Processing Center in Philadelphia.[23] Robert L. Rasor, also of the General Accounting Office, commented that the adoption of the concept would be advantageous in many areas of government accounting and he couldn't understand why it was not implemented by other departments after the successful application at the Post Office Department.[24]

Information concerning the whole-dollar accounting concept is restricted only to professional journals and bulletins, and these references are relatively aged. College textbooks on accounting do not even mention the technique. Doctor Ralph D. Kennedy of George Washington University cites the value of whole-dollar accounting in his graduate cost accounting course and has discussed the concept in advanced accounting seminars.

Definition and Principles

Whole-dollar accounting can be defined as the recording of accounting entries in whole dollar amounts and at the earliest practicable point in the accounting sequence. Thus, this eliminates

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[23]Interview with Edward J. Mohoney, Associate Director, Accounting and Auditing Staff, General Accounting Office, February 12, 1964.

[24]Interview with Robert L. Rasor, Associate Director, Accounting and Auditing Staff, General Accounting Office, February 12, 1964.

the necessity of recording the decimal point and cents wherever possible. The concept is based on the proved formula of equilization--if a sufficient volume of entries are made, the manipulation of the cents in all accounting transactions would tend to equalize, provided, of course, that the handling of the cents is properly accomplished.[25]

As an accounting technique, whole-dollar accounting is based on the fact that there is a point beyond which the expense of recording fractions of a dollar outweighs their significance and that adequate results can be obtained where records are kept within acceptable tolerances of exactness. Mathematicians state that to maintain a consistent program of accuracy the number of significant figures in a computation need be only one greater than the number of significant digits required in the answer. In counting the number of significant digits, one starts with the furthest one to the left, (excluding preliminary zeros in the case of a magnitude smaller than unity), and counts to the last digit which has significance in expressing the full measure of real accuracy which is present in the last. This is equally true in much of today's accounting in dollars and cents. It has been stated that the human mind simply cannot appreciate the existence of a difference between two magnitudes when one of them is only a

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[25]"Pennyless Bookkeeping Solves Accounting Delays," American Business, p. 13.

thousandth part different from the other. This does not mean that it cannot discern which one is bigger, but it does mean that when considering them individually it cannot comprehend the fact of inequality in so small a degree.[26]

Remaining within an acceptable tolerance is achieved by rounding cents into dollars rather than dropping them. Normally this is accomplished by rounding to the nearest whole dollar all amounts above or below 50 cents, and rounding off even half dollars to the nearest even dollar. The cutting point of 50 cents is utilized in most applications of the concept and has proven effective in maintaining an acceptable tolerance. In certain instances the cutting point has been established at other values above and below the half-way point based on the greater number of transactions that occur at these higher or lower points. The cutting point can be established on trial runs and observing the balance in the account established for the cents that are eliminated.

Depending on the desired tolerance, the cents eliminated may be totally disregarded or may be accounted for separately. The application of the former is best suited for reports, statistics, statements, tabulations and listings.[27] In the latter case cents

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[26] Barber, loc. cit., p. 28.

[27] E. S. Barnard, "Whole-Dollar Accounting--An Application," National Association of Cost Accountants Bulletin, (August, 1955), p. 1706.

separated in the original books of entry are accumulated and handled as lump sums at the end of a particular accounting cycle, such as, at the end of a batch or lot, the end of a day or week, and the end of a month or quarter.

Assuming that the greatest majority of accounting transactions in business today amounts to less than a thousand dollars, the elimination of the cents and the decimal point in certain cases could result in a savings of from 40 to 50 percent per transaction. Consider the number of transactions that occur in a single day and the greater number of times that each transaction is posted to various accounts, transcribed in records and manipulated for operational and statistical information, and the time and labor-saving aspects of the concept become readily apparent. (Note Appendix C.)

The larger proportion of accounting and bookkeeping is carried on for internal purposes rather than external. Profit and loss accounts are maintained in great numbers and in great detail to keep business under control. Practically all balance sheet accounts--with the exception of cash, accounts receivable and accounts payable--serve the same purpose; to help management manage the business. The language used in these records is of little or no concern outside the company. Certainly the cents in the records serve no useful purpose in providing sufficiently accurate information to operate a business firm, particularly those

accounts which reflect business judgments and estimates. Under these conditions, insistence on penny accuracy for the sake of accuracy hardly reflects the highest degree of common sense.[28]

Whole-dollar accounting does not connote the abandonment of double entry bookkeeping when cents are eliminated. There still remains the same philosophy of "balancing" debits against credits, or details against controls, as is present when cents are used throughout the accounts.[29] The amounts in the general ledger balance to the penny except that one or more accounts therein are established to record the number of cents eliminated from entries to various classified accounts.

To cite a practical example, assume that there is a control account in the general ledger for administrative expenses. Amounts in whole dollars would be charged to this account from various sources, one of which would be the voucher, or accounts payable. The accounts payable control on the other side would be credited with the exact amount, including cents, and the details in support would carry the exact amount also. The difference between the cents accumulated in the accounts payable control and the whole dollars charged in the administrative expense control would be entered in the penny elimination or variance account.

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[28]Birkhold, loc. cit., p. 162.

[29]Robert H. Birkhold, "Cents-less Accounting; An Exchange of Ideas," The Internal Auditor, (September, 1953), pp. 73-74.

This variance account in itself provides control over the elimination of pennies in that it is periodically reviewed to see that the balance does not become significant. The separate accounting and review of the penny elimination account normally requires only a fraction of the time required to process cents through all the accounting records, and with no loss in value since the whole dollars are as significant to management as they would be with the cents included.[30]

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[30] Ibid., pp. 75-76.

CHAPTER III

APPLICATIONS OF WHOLE-DOLLAR ACCOUNTING

The full realization of the concept's benefits depends upon the extent to which it is applied. Where possible, cents should be eliminated as soon as possible, and in all subsequent accounting operations and accounts except those in which cents are indispensable.[1] Accounts such as accounts receivable, accounts payable, accrued payroll, accrued payroll deductions, and cash must be maintained in dollars and cents.[2] Basically, all accounts involving a third person normally will include cents unless arrangements are made otherwise. Pan American World Airways, for example, has made reciprocal agreements with other airlines by which each airline accepts each other's billings with the cents dropped and ignored. A predetermined and agreed upon flat sum of something less than 50 cents per item is added to the total of the bill and accepted without audit.[3] In addition, Pan American World

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[1] F. A. Shick, "The Elimination of Cents from Accounting Records," The Journal of Accountancy, (November, 1941), p. 400.

[2] James B. Frost, "Program for Converting to Whole-Dollar Accounting," National Association of Accountants Bulletin, (August, 1961), p. 69.

[3] John S. Woodbridge, "How Cents-less Accounting Saves Money for Pan American," Management Methods, (June, 1954), p. 22.

Airways effects ticket refunds and ticket reroutings in whole dollars,[4] and some companies have secured approval of certain customers to have invoices rendered in whole dollar amounts only.[5]

An analysis of the applications of the concept to the balance sheet and the income statement accounts is illustrated in Table 2. Even though certain accounts are noted as not being applicable it should be understood that internal distribution of information from these accounts can be made in whole dollars.

Details of Whole-Dollar Applications

Penny Elimination Accounts

When using the whole-dollar concept, companies account for the cents which have been dropped or rounded off in various manners. Records which do not require close tolerances of accuracy may have the cents dropped or rounded off without any further accounting for the cents eliminated. In most instances, however, the cents credited or debited are accumulated and transferred to a penny elimination account. Usually this is a newly established account which is given various titles by different companies. The accounts have been called: Round Out, Penny Variance, Penny Elimination,

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[4] *Ibid.*, p. 21.

[5] Wayne R. Archerd, "An Application of Whole Dollar Accounting," *National Association of Cost Accountants Bulletin* (January, 1952), p. 618.

TABLE 2

APPLICABILITY OF WHOLE-DOLLAR ACCOUNTING

Account	Use of Whole Dollar	
	Yes	No
Current Assets:		
Cash		x
Temporary Investments	x	
Interest Accrual	x	
Notes Receivable		x
Interest Accrual	x	
Accounts Receivable		x
Estimated Uncollectable Accounts	x	
Merchandise Inventory	x	
Office and Store Supplies Inventory	x	
Prepaid Insurance	x	
Prepaid Taxes	x	
Long-term Investments:		
Securities		x
Fixed Assets:		
Plant and Equipment	x	
Accumulated Depreciation	x	
Current Liabilities:		
Notes Payable		x
Accounts Payable		x
Accruals, Property Tax	x	
Accruals, Social Security Tax		x
Accruals, Income Tax	x	
Long-term Liabilities:		
Notes Payable	x	
Mortgage Notes Payable	x	
Owners Equity:		
Capital Stock		x
Surplus		x
Sales and Related Accounts:		
Sales	x	
Returns and Allowances	x	
Sales Discounts	x	

TABLE 2 CONTINUED

Account	Use of Whole Dollar	
	Yes	No
Cost of Goods Sold:		
Purchases	x	
Transportation on Purchases	x	
Purchase Returns and Allowances	x	
Purchase Discounts	x	
Operating Expenses:		
Selling Expenses		
Advertising Expenses	x	
Delivery Expenses	x	
Depreciation of Delivery Equipment	x	
Salesmen's Salaries Expense	x	
Store Supplies Expense	x	
Transportation on Sales	x	
General and Administrative Expenses		
Depreciation of Office Equipment	x	
Depreciation of Building	x	
Insurance Expense	x	
Office Salaries Expense	x	
Office Supplies Expense	x	
Taxes Expense	x	
Uncollectible Accounts Expense	x	
Other Revenue and Expense Accounts:		
Other Revenue	x	
Interest Income	x	
Dividend Income	x	
Rental Income	x	
Other Expense		
Interest Expense	x	
Intercompany Accounts	x	
Financial Reports and Statements:		
Balance Sheet Statements	x	
Income Statements	x	
Budgets	x	
Internal Management Reports	x	
Income Tax Returns	x	
Property Tax Returns	x	
Reports to S.E.C.	x	

Penny Adjustment, Cents Elimination, and Controlled Tolerance Account. In some companies previously established accounts as Estimated Uncollectible Accounts Receivable and Commercial Discount accounts are employed. Not only are penny elimination accounts given a variety of titles, but are also classified variously as general administrative expense, accounts payable, prepaid expense, or deferred charge accounts. Basically the company that adapts the whole-dollar concept selects account classifications which seem most applicable. The balance in the penny elimination account is closed out monthly or yearly to profit and loss.

General and Subsidiary Ledgers

All postings to the general and subsidiary ledgers for the accounts in Table 2 should be recorded as indicated. The dollars and cents should be separated in the applicable accounts, as for example:

Accounts Receivable	$2,530.18	
Sales		$2,530.00
Estimated Uncollectible Accounts Receivable		.18

Thus the accounts receivable controlling account is in the exact amount of the customers' accounts, and the sales account in whole dollars only. In order to prepare statements and reports of a general ledger nature it is first necessary to prepare a trial

balance of the exact balances in the accounts and the difference between the total cents (debit) and the total cents (credit) should be credited to the penny elimination account.

Accounts Receivable

Sales to customers must be kept in the actual amounts of the invoice and subsequent entries to such accounts, whether for debit memoranda, freight adjustments or cash must also be entered in exact amounts. In all ensuing operations, however, the cents are handled in much the same manner as will be described for accounts payable. The registers of invoices are prepared with the dollars and cents separated. The total cents value can be credited to the Estimated Uncollectible Accounts Receivable, the theory behind this being that an undeterminable amount of uncollectible accounts is being carried daily. Creating a portion of this account through the crediting of cents from each invoice, and the remaining amounts on the customary percentage of total sales appears to be based on sound judgment.[6]

Accounts Payable

Vendors' accounts should reflect the exact amount of dollars and cents. Distributions of the invoices in registers to various cost inventory and expense accounts should be separated into rounded

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[6]Shick, loc. cit., p. 402.

whole dollars, and cents should be recorded as debits or credits in the cents column. Monthly the exact total of the vouchers is credited to Accounts Payable and the whole dollar entries are debited to the applicable accounts. The total accumulation of the cents column is then debited or credited to a Commercial Discount account.[7] The dollar value of any vendor's invoices chargeable to more than one account is distributed in whole dollars to the accounts affected on a rounded dollar basis. The effect of this method of treating the cents in the vendor's invoices is to reduce the balance in the commercial discount credited to the cost of sales, and to reflect that benefit in a reduction in charges to cost or expense accounts.

Billing Procedure

Although some companies such as Pan American World Airways[8] have made agreements with certain of their customers to be billed in whole dollar amounts, most billings are in exact amounts and are so posted to the accounts receivable ledgers. Internal distributions of the accounts receivable amount are usually separated into sales transportation on sales, sales commissions or other such deductions which are calculated to rounded dollar amounts during the postings

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[7] *Ibid.*, p. 401.

[8] Woodbridge, *loc. cit.*, p. 22.

to the sales registers.[9] Differences between the rounded amounts and the exact figures for the accounts receivable are posted to the cents column of debits or credits and accumulated on a monthly basis. The total of the monthly debit and credit accumulation is then credited to either the Estimated Uncollectible Accounts Receivable account, the Commercial Discount, or other penny elimination account, as desired.

Inventories and Stores Supplies

Unit prices of individual inventory items are usually maintained in dollar and cents amounts. Receipts, issues and balances can be rounded into whole dollar amounts during the extension process of computing the costs from quantities times unit price.[10] Numerous issues of single items with a unit price of less than one dollar could create distortions if employing the whole dollar concept; however, two different approaches are utilized. The first method is to make extensions in dollars and cents, and then round off the accumulations for cost distributions.[11] The second approach is to pre-extend the items and issue the items at no cost.

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[9]Florence A. May and Herbert F. Klingman, Whole-Dollar Accounting, (New York: Controllership Foundation, Inc., 1957), p. 100.

[10]Shick, loc. cit., p. 401.

[11]Archerd, loc. cit., p. 620.

Payrolls and Labor Distributions

Wage payments to employees are computed and paid in dollars and cents for the exact amount earned. The distribution of such labor to the process costs, job-order costs, or expense accounts can be made in whole dollars. The cents difference arising through the process of rounding off is charged or credited to a cents elimination account.[12] From this point on all labor charges are distributed in whole dollars as far as costs are concerned. In the event that additional breakdowns of costs are required, all breaking points will be at whole dollar amounts to prevent the reintroduction of cents into the accounting distribution. For example, if the labor costs for a major function that amounts to $35,235 must be assigned to two equal subfunctions, the breakdown would be $17,618 for one subfunction and $17,617 for the other. Considering the usual estimates that are included in the assignments of costs, the dollar difference is well within an acceptable tolerance.

Property, Plant and Equipment

Accounts are maintained in whole dollars only. Cents are eliminated at the source from which the charges or credits originate, as are reserves or accruals for depreciation. Charges

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[12]Shick, loc. cit, p. 401.

to these accounts arise from accounts payable vouchers which are distributed in whole dollars with the cents involved from the rounding off being debited or credited to the cents elimination account.[13] When equipment is sold or otherwise disposed of, the credit therefrom is posted in whole dollars, and any cents incident to the transaction are credited to the commercial discount account.[14] Considering that the life of a property, or equipment item is estimated and that the residual value is also estimated, it is readily apparent that a dollar rate for depreciation purposes is as near complete accuracy as is practicable to obtain.

Sales

The income from sales is maintained in the account in whole dollars. Customers' invoices and accounts receivable ledgers would be in the exact amount of the sale,as noted previously. The sales invoice registers would separate the sales into rounded dollars, and debit and credit cents. The procedure for accomplishing the penny eliminating would be identical to that utilized in accounts payable registers.[15]

Material Distribution

Material other than miscellaneous supplies is normally accumulated periodically by cost and inventory accounts. The cents

[13]Shick, loc. cit., p. 403.

[14]Archerd, loc. cit., p. 627.

[15]May and Klingman, loc. cit., pp. 53-54.

are eliminated from the rounded dollar totals.[16] Since inventory accounts are maintained in whole dollars, cents are created by the calculations of unit price times quantity and are again eliminated in the rounding of the total.

Intercompany Transfers

Materials and supplies that are transferred between the divisions or plants of a company should be made in whole dollars. If cents be transferred, the plant inventory account for cents elimination is charged or credited on the receiving plant's journal voucher and the same account is credited or charged on the forwarding plant's journal voucher. If cents must be transferred to the home office from a division or plant, the general ledger commercial discount account is charged or credited on the home office journal voucher and cents elimination account is credited or charged on the division or plant's journal voucher. The plant's cents elimination account is cleared to inventory adjustment at the end of the year.[17]

Requests for Material

Internal requests for material should be prepared in rounded whole dollar amounts. The resulting cents variance is accumulated and posted monthly to the penny elimination account.[18]

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[16] May and Klingman, loc. cit., p. 55.

[17] Archerd, loc. cit., p. 621.

[18] May and Klingman, loc. cit., p. 88.

Statements and Reports

Monthly operating reports and yearly statements should be prepared in whole dollars.[19] Accounts maintained in exact amounts are rounded off to whole dollars in preparing the statements and reports. The elimination of cents from such reports is considered one of the major advantages of the concept by the Comptroller and his staff, for there is a marked saving in time at the end of the accounting periods.[20] To obtain maximum benefit of the concept in report preparation, only dollar amounts should be presented without any decimal points, and no zeros or dashes substituted for the omitted cents.

Implementing the Concept

Due to the simplicity of the concept the implementation of whole-dollar accounting consists of explaining the concept to the accounting personnel and publishing brief procedures covering each of the various work areas. Certain companies, such as an unidentified large food manufacturing company,[21] Pan American World

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[19] May and Klingman, loc. cit., p. 103.

[20] Paul J. Horchler, "Eliminate Pennies--Save Dollars," National Association of Accountants Bulletin, (January, 1960), p. 58.

[21] May and Klingman, loc. cit., pp. 63-65.

Airways[22] and the Minneapolis Star and Tribune[23] concentrated their training efforts to verbal group instructions and brief memoranda specifying which accounts are to be rounded into whole dollars and which are to be maintained in exact dollars and cents. Exhibit 1 is an exact copy of the memorandum issued by the Comptroller at the Minneapolis Star and Tribune. Other companies, such as the Ashland Oil and Refining Company[24] and the F. and R. Lazarus and Company[25] issued no written instructions whatsoever and applied the concept by instructing the accountants in groups and informal meetings, following by close supervision for several weeks.

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[22] Ibid., pp. 165-167.

[23] Letter from C. B. McCue, Treasurer-Controller, Minneapolis Star and Tribune, Minneapolis, Minnesota, March 30,1964.

[24] Letter from Arthur J. Points, Controller, Ashland Oil and Refining Company, Ashland, Kentucky, March 16, 1964.

[25] May and Klingman, loc. cit., p. 235.

EXHIBIT 1

MEMORANDUM INSTRUCTIONS TO ACCOUNTING DEPARTMENT OF THE MINNEAPOLIS STAR & TRIBUNE REGARDING USE OF WHOLE-DOLLAR ACCOUNTING

MEMO TO: Accounting Department

Please mark your chart of accounts to show that, effective with the 3rd period of 1953, all entries should be "rounded" (expressed in whole dollar amounts) to the following accounts:

CASH -	1000 series of accounts -	NONE
ACCOUNTS RECEIVABLE -	1100 series -	1181 thru 1190
ACCOUNTS RECEIVABLE -	1200 series -	1221 thru 1271
OTHER ACCOUNTS -	1300 series -	NONE
INVENTORIES -	1400 series -	ALL
PREPAID & DEFERRED CHARGES -	1500 series -	ALL
CLEARING ACCOUNTS -	1600 series -	ALL, except account 1607-Bill Out Bad Debt Clearing
FIXED ASSETS -	1700 series -	ALL
RESERVES FOR DEPRECIATION -	1800 series -	ALL
OTHER ASSETS -	1900 series -	ALL

The basis for rounding the collars will be as follows:

Odd cents under 50¢ will be dropped.
Odd cents over 50¢ will be increased to the next dollar.
Amounts ending in exactly 50¢ will be rounded to the nearest even-numbered dollar: $1.50 becomes $2.00, while $2.50 would also be $2.00.

EXHIBIT 1 CONTINUED

The adoption of this method is expected to expedite both our normal daily record keeping operation and the preparation of fiscal statements.

If you have any question regarding the application of this method to any accounting records prepared by you, I will be pleased to discuss such problems with you.

March 18, 1953 /s/ T. M. Jones

CHAPTER IV

ADVANTAGES OF WHOLE-DOLLAR ACCOUNTING

There are many advantages gained by utilizing the whole-dollar accounting concept which are readily apparent. There are also several indirect ones which may at first not be apparent, or which may seem insignificant, yet these indirect benefits may in the long run prove to be of greater benefit.[1]

Edward S. Barnard, as the accounting manager of the Syracuse Supply Company, noted that the concept meets the necessary requirements of a good accounting system for it is:[2]

1. Simple.
2. Flexible.
3. Accurate.
4. Adaptable.
5. Neat.
6. Inexpensive.
7. Timely.

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[1]Florence A. May and Herbert F. Klingman, Whole-Dollar Accounting, (New York: Controllership Foundation, 1957), p. 13.

[2]E. S. Barnard, "Whole Dollar Accounting--An Application," National Association of Cost Accountants Bulletin, (August, 1955), p. 1706.

Simple Concept

The concept of whole-dollar accounting is not complicated, and accordingly it can be implemented without long periods of study or training. As illustrated in Chapter III, companies have put the concept into operation with only brief memoranda and training periods. Robert S. McLaren, the Assistant Controller of the Dravo Corporation, cited the simplicity of the concept in his letter of March 12, 1964 by stating that the concept had been installed in 1949 and had been unchanged up to the present time.[3] The Comptroller of Time Incorporated, as have others who have established the concept, observed that in the beginning there was some skepticism about its use on the part of his accountants, primarily due to their training and work experience. Like most accounting personnel, they felt that accounts must be balanced to the penny.[4] Once personnel became familiar with the concept through training and application, they readily adopted the concept with excellent results.

Reduction of Work

By eliminating the decimal point and cents, savings in time and effort can be obtained in accomplishing writing, typing, and posting to accounts, computing amounts, transcribing, totaling

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[3]Letter from Robert S. McLaren, Assistant Controller, Dravo Corporation, March 12, 1964.

[4]May and Klingman, loc. cit., p. 261.

columns and tabulating data.[5] Time, Incorporated has credited the whole-dollar concept for its elimination of practically all overtime in the accounting department.[6] Where typical transactions contain five digits, of which two can be dropped, the time required by posting and checking can be reduced by 40 percent. Dropping the decimal point in similar circumstances results in a reduction of 50 percent of the work. Increased savings have been ascribed to the fact that in checking totals on an adding machine or calculator, a clerk could operate the machine by touch for three digits but had to look occasionally at the keyboard for five.[7]

Saving in clerical accounting salaries directly attributable to whole-dollar accounting by the Dravo Corporation has been in excess of 10 percent.[8] J. S. Woodbridge, the Comptroller of Pan American World Airways, commented in 1954 that the concept was saving over 25 million keypunch strokes each year, in just one tabulating operation alone, with continued and greater savings throughout the process.[9] Ten years later, and with the introduction of the electronic data processing computer at Pan American, their

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[5]Robert H. Birkhold, "Cents-Less Accounting," _The Internal Auditor_, (June, 1953), pp. 74-75.

[6]"Pennyless Bookkeeping Salves Accounting Delays," _American Business_, (November, 1954), p. 13.

[7]E. C. Jordan, "Penny Elimination in Accounting Records: A Case Report," _The Comptroller_, (May, 1952), p. 223.

[8]"Others Say Cents-less is Sensible," _Management Methods_, (June, 1954), p. 27.

[9]John S. Woodbridge, "How Cents-less Accounting Saves Money for Pan American," _Management Methods_, (June, 1954), p. 21.

management still feels that the concept has advantages. H. J. Sanborn, the Administrative Assistant, stated that since that time, they have been using electronic computers for over seven years, but regardless of the type of equipment used, the theory of whole-dollar accounting still applies.[10] At the Syracuse Supply Company, the concept reportedly eliminated the handling of more than a million digits per year in recording and posting operations. This made it possible for personnel to assume additional duties resulting from an increased volume of business. It was noted that the time required to post the general ledger accounts was cut in half.[11]

Reduction of Errors

In using the whole-dollar accounting concept, less digits are handled as cited previously, and accordingly, there is less chance of errors occurring. Thus, the quality is also improved and errors can be detected more easily.[12] Interposition of digits occurs less frequently and there are fewer errors in repetition of the wrong figure in a number involving a repeated digit, such as

[10]Letter from H. J. Sanborn, Administrative Assistant, Pan American World Airways, March 17, 1964.

[11]May and Klingman, loc. cit., p. 19.

[12]Robert H. Birkhold, "Penny Elimination," The Controller, (April, 1952), p. 162.

$432.25 vs. $433.25.[13] On occasions, an addition of three columns of figures can be made mentally; however, with additional columns it usually requires the use of column by column addition or the use of an adding machine.[14]

To illustrate the advantage gained in verifying amounts using the whole dollar concept, note the four tabulations below:

(1)	(2)	(3)	(4)
$805.81	$805.81	$806	$806
4.29	4.29	4	4
20.36	20.36	20	20
$829.46	$830.36	$829	$820

In the first, the one dollar footing error is noticeable but well camouflaged by the pennies. In the second, the ten cents error is even less obvious. Neither is likely to be detected without columnar addition. In contrast, the one dollar and ten dollar errors in the third and fourth tabulations are obvious at a glance and no opportunity exists for errors in pennies.[15]

Paul J. Horschler[16] related the reduction of errors by whole-dollar accounting to increased productivity in the following ways:

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[13]Raymond J. Barber, Jr., "Does Your Accounting Make Cents?," National Association of Cost Accountants Bulletin, (September, 1947), p. 29.

[14]Birkhold, loc. cit., p. 163.

[15]Jordan, loc. cit., p. 222.

[16]Paul J. Horschler, "Eliminate Pennies--Save Dollars," National Association of Accountants Bulletin, (January, 1960), pp. 57-58.

1. The less errors - the more work of higher quality that is accomplished.
2. The less time needed for locating errors and verification after errors are found.
3. The less pressure at critical times with faster closings and quicker statements.

Reduction of Statement and Report Time

While the preparation of statements and reports in whole dollars has become a common practice, the process is greatly facilitated when the underlying accounts and records are kept in whole dollars.[17] During the normal closing of accounts and the preparation of statements and reports, personnel are usually performing under exceptional pressure of work load and time. The easing of work during these periods is highly desirable. At companies such as Surface Combustion and Cleveland Electric Illuminating, accounting management and personnel agree that there have been reductions in work effort as a result of the employment of the whole-dollar accounting concept, and reports have been completed earlier.[18] The concept can be a valuable aid to efficient management since one of the major principles of good management is that management be kept informed and the information must be timely.[19]

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[17] Barnard, loc. cit., p. 1705.

[18] May and Klingman, loc. cit., p. 25.

[19] Peter F. Drucker, The Practice of Management, (New York: Harper and Brothers, Publishers, 1956), p. 131.

Improved Quality of Reports

In keeping management informed, Mr. Heckert states that reports should be as clear and simple as possible, and should contain only essential information--superfluous information should be eliminated.[20] By employing whole-dollar accounting and eliminating the cents from reports, the reports become clearer and easier to comprehend. It is easier to identify significant changes and to make comparisons and mentally compute relationships with the cents eliminated.[21] Not only are the appearance and readability improved, but also there is a highly tangible saving in report space. More figures can be inserted in the same space or the overall size of the paper can be reduced.[22] Management is aware that in certain reports accounting or statistical information is excluded because of the size of the report form. This is particularly true when reports are prepared by electronic computers, electric accounting machines or bookkeeping machines. A reduction in report form size also provides additional savings in file space requirements and in the cost of procurement of the forms.

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[20] J. Brooks Heckert, The Analysis and Control of Distribution, (New York: Ronald Press Company, 1957), p. 335.

[21] Birkhold, loc. cit., p. 164.

[22] Barnard, loc. cit., p. 1706.

Improved Personnel Morale

Higher personnel morale is another advantage. Nothing can be more frustrating than to spend a great deal of time attempting to locate an error that amounts to only a few cents.[23] With whole-dollar accounting, this frustration is eliminated and accounting personnel feel that they are accomplishing a function of great import---that of accounting for the large value in whole dollars. The futility of attempting to locate a minor error is well illustrated by a story cited by C. B. McCue, the Treasurer-Controller of the Minneapolis Star and Tribune:[24]

> It seems that a senior in a public accounting firm was sent to Texas in the middle of July to make an examination in connection with a court action. Upon arriving, the auditor found that the books were in such a deplorable condition that he decided it would be necessary to get the details and reconstruct the transactions so that he could prepare a financial statement. The court was pressing for the information and every day our auditor received letters from his principal inquiring as to his progress and his estimation as to when he would be finished.
>
> Finally after a day of 100-plus heat, he was ready to take off a trial balance. Along about mid-evening, with the thermometer still in the 90's, our auditor added up the trial balance and found the books to be out of balance by ten cents. (He had not adopted the whole-dollar accounting or he would never have encountered this situation.) Knowing that he was supposed to fly back to his office that night, he prepared a final journal entry for the ten cents with the following explanation: "To balance the god-damned books" -- I doubt if there would ever be any doubt as to why the

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[23] "Pennyless Bookkeeping Saves Accounting Delays," American Business, (November, 1954), p. 13.

[24] C. B. McCue, "Centsless Accounting," Whole-Dollar Accounting, (New York: Controllership Foundation, 1957), p. 319.

> journal entry was prepared. I am sure that many of our employees . . . would be glad to hear us make such an explanation and thereby reduce overtime.

Along with higher morale, one of the intangible or indirect advantages to whole-dollar concept is that with its introduction, which is a distinct departure from tradition, accounting personnel appear more willing to come forth with suggestions for other improvements in procedures and methods and, in a few instances, have resulted in the development of a two-way communications system for proposing and considering constructive criticism and new ideas.[25]

No Unsuccessful Applications

Although this cannot necessarily be considered an advantage, it is also not a disadvantage. There is no mention of any unsuccessful applications of the whole-dollar accounting concept in any of the readings cited, nor has the Controllership Foundation of the Controllers Institute of America in its research found any.[26] Once a company has implemented the concept in its accounting system it has never reverted to the old system of accounting for the cents.

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[25] May and Klingman, loc. cit., p. 13.

[26] "Whole-Dollar Accounting Studies," The Controller, (December, 1957), p. 592.

CHAPTER V

DISADVANTAGES OF WHOLE-DOLLAR ACCOUNTING

None of the business concerns cited in published articles concerning the whole-dollar accounting concept has reported any major limitations or disadvantages. There are some disadvantages which are theoretically possible, or even hypothetical, and there are purported disadvantages which are used in "arguments" against the whole-dollar accounting concept. Some of the hypothetical disadvantages could possibly occur with inexperience in the application of the concept. May and Klingman,[1] however, in their study of whole-dollar accounting, stated that in all their on-the-spot research and also an industrious search of other reports of actual experience with whole-dollar accounting, they were unable to uncover any experience of basic weakness or disadvantages inherent in the concept. The hypothetical disadvantages did not occur, or in the few instances in which they did, corrective action promptly eliminated them.

Concept Abandons Double Entry Principle

One of the so-called disadvantages cited in comments against whole-dollar accounting can be attributed to a

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[1]Florence A. May and Herbert F. Klingman, Whole-Dollar Accounting, (New York: Comptrollership Foundation, 1957), p. 14.

misunderstanding of the concept--that by employing this technique of accounting one abandons the basic principle of double entry.[2] This is incorrect, for the philosophy of balancing debits against credits, or details against controls, as is present when pennies are used throughout the accounts, still exists. The accounts in the general ledger balance to the penny, except that one or more accounts therein are established to record the pennies eliminated from the various classified accounts.[3]

Loss of Control

Skeptics have contended that the concept would encourage carelessness on the part of the accounting personnel and lead to padding of entries to insure balancing or for other purposes.[4] Without a complete understanding of the reasons behind whole-dollar accounting and how it is used, the full potential of the concept may not be realized and the above conditions could occur.[5] If adequate and specific instructions are issued as to which accounts the whole-dollar concept is to be applied, and adequate supervision

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[2]"Cents-less Accounting: An Exchange of Ideas," The Internal Auditor, (September, 1953), p. 72.

[3]Ibid., pp. 73-74.

[4]May and Klingman, loc. cit., p. 31.

[5]Robert H. Birkhold. "Cents-less Accounting," The Internal Auditor, (June, 1953), p. 78.

and follow-up is effected, accounting personnel will continue to function as efficiently and carefully as at the present time.[6] In addition to the above safeguards which are routine, in the Navy there are also the audits by the various staffs, such as the Navy Regional Finance Centers, the Navy Area Audit Offices, the General Accounting Office, and the Inspector General of the Supply Corps that would deter carelessness or padding.

Undesirable Variances

A hypothetical disadvantage that is sometimes presented as a reason for not employing the concept is that by eliminating the cents a significant variance could result in either a debit or credit of serious import.[7] When the rounded dollar technique of whole-dollar accounting is employed, some variances will be created; however, as in the case of any quality control system the variances can be kept within acceptable limits or tolerances.[8] In areas where transactions, due to their nature or infrequency, would result in variances in excess to the acceptable limits, the whole-dollar accounting concept should not be employed. The areas in which whole-dollar accounting should not be utilized can be

[6] E. S. Barnard, "Whole Dollar--An Application," National Association of Cost Accountants Bulletin, (August, 1955), p. 1708.

[7] May and Klingman, loc. cit., pp. 32-33.

[8] "Pennyless Bookkeeping Solves Accounting Delays," American Business, (November, 1954), p. 13.

easily determined by applying a simple statistical analysis and making an objective decision whether or not the concept should be employed.

In several organizations referenced in the May and Klingman study,[9] the net cumulative variances were well within acceptable limits:

> Time, Incorporated reported a total net variance of approximately $500 after more than six years--on an average annual volume of about two hundred million dollars.
>
> Dravo's net amount in the "Penny Elimination" account has ranged between $200 and $300 per year on volume ranging between $80-$90 million annually.
>
> At Colgate-Palmolive, the cumulative net variance in the Penny Adjustment account for a three-year period totaled $980. Domestic sales for this company approximate $290 million per year.
>
> Bethlehem Steel for Fiscal 1955 showed a net variance of $5,347 with total billings (sales) of $2 billion. This amounts to a net variance of roughly $2.60 for each billing.

Concept Will Be More Trouble

Personnel not thoroughly familiar with whole-dollar accounting have contended that the concept will result in more trouble than it is worth.[10] In certain areas of small numbers of transactions, this comment may be true; however, as proven by the

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[9] May and Klingman, Loc. cit., pp. 34-35.

[10] Robert H. Birkhold, "Penny Elimination," The Controller, (April, 1952), p. 163.

number of concerns which have management and adopted the whole-dollar concept, accounting personnel acquainted with the concept feel that it is worth it in savings of time, effort and money.[11]

Mathematical Probabilities

Finally, in the area of disadvantages are those of mathematical probabilities which might occur under certain circumstances.[12] A considerable percentage error may occur in the difference between two numbers, each of which has a small error. For instance, if an item was sold at $624.70 and was carried at a cost of $519.38, a gross profit of $105.32 would be made. If the monitary amounts were rounded off to $625, $519, and $106, an error of only .048 percent in sales and .073 percent in cost would occur; however, a .646 percent error would occur in the gross profit. This, of course, would be only one transaction and accordingly, based on the law of averages, the error ratios in a large number of transactions would decrease to under one tenth of a percent. There could, in addition, develop serious distortions or variances when there are small errors in unit prices or rates which are multiplied by large quantities. It is advisable to carry unit prices and rates as accurately as currently done and then

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[11] Barnard, loc. cit., p. 1710.

[12] Raymond J. Barber, Jr., "Does Your Accounting Make Cents?" National Association of Cost Accountants Bulletin, (September, 1947), p. 26.

round-off amounts after extensions are made.[13]

Proper Application

All in all, the disadvantages of whole-dollar accounting are far outweighed by the advantages. Since the disadvantages only operate under certain conditions, a careful analysis of the accounting requirements in each area that the concept is to be applied should preclude any possible pitfalls. An improper application of the rounding-off procedure was cited during personal interviews with personnel in the General Accounting Office.[14]

During the fiscal year 1963, the Federal Government employed 2,514,000 civil service personnel, of which more than one million, about 43 percent of the total, were paid according to salary scales fitted to the Federal job classification system.[15] The pay ranges from $3,305 to $20,000, and is established by Congress. The salary tables, which convert these yearly salaries to hourly rates for use by the various agencies, are developed by the General Accounting Office. A few years ago one of the General

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[13] Ibid., p. 35.

[14] Interviews with Robert L. Rasor, Associate Director, Accounting and Auditing Policy Staff, and John W. Moore, Counselor, General Counselor's Office, General Accounting Office, March 3, 1964.

[15] U. S. Civil Service Commission, The Federal Career Service . . . at Your Service, 1963.

Accounting Office's personnel recommended that when the salary tables are computed, that all hourly rates during the conversion be rounded upward to the nearest cents. The effect of this erroneous rounding can be noted in computations of pay based on the General Accounting Office Salary Table, Number 42, issued December, 1963.

For a GS-4 in pay step 4, the annual salary as established by Congress is $6,035; however, the salary table indicates an hourly rate of $2.91. If this hourly rate is converted back to a yearly salary ($2.91 times 2,080 hours a year) it amounts to $6,052.80. A GS-15 in pay step one is authorized an annual salary of $14,565, by Congress. The salary table indicates his hourly rate to be $7.01. If this rate is converted back to an annual salary ($7.01 x 2,080 hours), it would amount to $14,580.80. As a result, the General Accounting Office estimates that Civil Service employees are annually being overpaid twelve million dollars, as compared to the amounts authorized and established by Congress.[16]

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[16] Interviews with Rasor and Moore, General Accounting Office, March 5, 1964.

CHAPTER VI

LEGALITY OF THE CONCEPT IN GOVERNMENT APPLICATIONS

The Budget and Accounting Procedures Act of 1950

The Budget and Accounting Procedures Act of 1950 (Public Law 784) delegates the responsibility to the head of each government agency for establishing and maintaining an adequate system of accounting and internal control which conforms to principles, standards, and related requirements for accounting prescribed by the Comptroller General of the United States.[1] Due to the wide scope and diversity of the government activities, different accounting systems have been developed by the various agencies which suit their needs and still conform to the principles, standards and requirements established by the General Accounting Office.[2]

In establishing the principles, standards and requirements the Comptroller General is required to consult with the Secretary of the Treasury and the Director of the Bureau of the Budget

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[1]Budget and Accounting Procedures Act of 1950, 64 Stat. 834, 31 U. S. C. 65, Sec. 113 (b).

[2]*Financial Management in the Navy*, (Washington: Bureau of Naval Personnel, 1962), p. 111.

concerning their accounting, financial reporting and budgetary needs.[3] Once the needs are identified, the Comptroller General implements the requirements through the publication of memoranda which have general application throughout all the government agencies:[4]

1. General Accounting Office General Regulations. These regulations are normally mandatory for all agencies, and are procedural in nature.

2. Accounting Systems Memoranda. These memoranda are less formal than the regulations and are used to make interim changes in the General Regulations, establish tentative requirement on a test basis during a development period and provide general information for all agencies.

3. Accounting Principles Memoranda. Only a few have been issued and these have not been attempts to institute firm sets of principles.

Comptroller General Decisions

In addition to the memoranda, the Comptroller General makes thousands of "advance decisions" in response to questions

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[3] Budget and Accounting Procedures Act of 1950, *loc. cit.*, Sec. 112 (a).

[4] Eric L. Kohler and Howard W. Wright, *Accounting in the Federal Government*, (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1956), p. 81.

received from various agencies concerning the propriety of actual or proposed transactions. Various General Accounting Office divisions may consider a case and make recommendations to the Comptroller General. Once a decision is made and issued it is binding on the executive branch of the Government and the General Accounting Office, for "within the government these decisions have the effect of law unless the Comptroller General is overruled in the courts or by the Congress."[5]

Such a decision was rendered when the Post Office Department was considering the adoption of the whole-dollar accounting concept in 1953. (Note Exhibit 2). In the letter to the Postmaster General, E. L. Fisher, the Acting Comptroller General, commented that the General Accounting Office was "interested in encouraging developments which will permit savings along with the accomplishment of adequate accounting results." These comments were consistent with the desires of Congress as set forth in their policy statement concerning governmental accounting in the Budget and Accounting Act of 1950. Generally speaking, Congress was for the elimination of duplication and uneconomical "accounting for the sake of accounting" procedures. Section III of the Act of 1950 specifically states:

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[5] Ibid., pp. 83-84.

EXHIBIT 2

LETTER TO THE POSTMASTER GENERAL
FROM THE COMPTROLLER GENERAL
OF THE UNITED STATES

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON 25

B-115333 July 27, 1953

The Honorable
The Postmaster General

My dear Mr. Postmaster General:

This is in reply to your letter of July 20, 1953, with regard to the elimination of pennies in accounting and reporting processes with certain limitations.

Inasmuch as you do not plan to drop cents with respect to transactions involving the public, or in accounting for cash and all other activities where accountability must be maintained, I do not view your proposal as a departure from prescribed accounting principles and standards. Moreover, we are interested in encouraging developments which will permit saving along with the accomplishment of adequate accounting results.

Our approval of an accounting system necessarily depends upon an evaluation of its adequacy as well as its conformity with prescribed principles and standards. However, I can assure you that inclusion of appropriate provisions for whole dollar accounting along the lines outlined in your letter would not in itself be a cause for withholding approval. Since the accounting system(s) of the Post Office Department is being developed cooperatively with my staff, I foresee no problem in connection with this matter.

Sincerely yours,

/s/ E. L. FISHER

Acting Comptroller General
of the United States

Section III. It is the policy of the Congress in enacting this part that:

. . . .

(e) Emphasis be placed on effecting orderly improvements resulting in simplified and more effective accounting, financial reporting budgeting, and auditing requirements and procedures and on the elimination of those which involve duplication or which do not serve a purpose commensurate with the costs involved.

Legality of Concept

Thus, the concept of whole-dollar accounting was "legalized" for use in the Post Office Department and any other agencies that follow the same guidelines of applying the concept to internal accounting. In 1954, J. W. Askew, the Controller of the Post Office Department, advised Walter E. Dewey, who was instrumental in helping the enactment of the whole dollar reporting proviso in the Federal Income Tax regulations that no legislation had been required to implement the whole-dollar accounting concept in the Post Office Department and none was anticipated in the future.[6] After ten years of utilizing the concept, no legislation has been required.[7]

John W. Moore, of the General Counsel, General Accounting Office, stated that he could not foresee any difficulties should the Navy desire to adopt the whole-dollar accounting concept,

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[6]Letter from J. W. Askew, Controller of the Post Office Department to Walter E. Dewey, January 14, 1954.

[7]Interview with Benjamin Wostein, Director of Postal Rates Division, U. S. Post Office Department, February 7, 1964.

provided, of course, that the Navy evaluates the areas of possible application and presents the proposed adoption of the concept to the Comptroller General for approval prior to implementation.[8]

While employing the concept for internal accounting in governmental agencies, the application of rounding off amounts to whole dollars is acceptable within the terms of the U. S. Code Annotated, Title 31.[9] Section 686 is concerned with the purchase or manufacture of stores or materials or the performance of services by a bureau or department for another bureau or department, and is quoted in part:

> . . . the head of such executive department establishment, bureau, or office to be in the interest of the government so to do may place orders with any other such department, establishment, bureau or office for material, supplies, equipment, work or services . . . [payment should be effected] on the basis of the actual cost of the material, supplies, or equipment furnished, or work or services performed, . . . shall be made as may be agreed upon by the departments, establishments, bureau or offices concerned.

Accordingly, if the various activities agree upon whole dollar amounts, it would be acceptable in accordance with the U. S. Code. Furthermore, internal government transactions between agencies do not have to be exact since these transactions represent adjustments between appropriations and accounts as distinguished from transactions with private businesses where an overpayment

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[8]Interview with John W. Moore, Counselor, General Accounting Office, February 12, 1964.

[9]U. S. Code Annotated, Title 31, Chapter II, Section 686.

might cause a financial loss to the United States. This point is cited in Comptroller General's decision B-116194 of October 5, 1953. (Note Appendix D)

CHAPTER VII

APPLICABILITY TO NAVY ACCOUNTING

In all facets of the Navy work is performed and functions accomplished within certain tolerances or standards. Basically it is a quality control system and is applied to nearly everything from the production of material processed under military specifications to fitness reports and the preparation of correspondence. The quality control system is allegedly applied to the Navy accounting system and requires a zero tolerance--accounting "to the penny" in all accounts. Yet with all this purported accuracy, accounts and records are more subject to error when additional digits in the form of cents are manipulated.[1] Shore activities authorized to render stores returns, as well as the Navy Regional Finance Centers and Navy Finance Centers, are allowed to make adjustments in the reconciliation of receipts from purchase[2] and receipts from other supply officers.[3] In addition, at all levels of the Navy supply and accounting system, adjustments and surveys are made to "correct" differences.

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[1]Robert H. Birkhold, "Cents-Less Accounting," _The Internal Auditor_, (June, 1953), p. 74.

[2]U. S. Navy Department, _Navy Comptroller Manual_, 3, Nav Exos P-1000, (April, 1952 Rev.) pp. 4-23-4-26.

[3]_Ibid._, pp. 4-43-4-45.

With the permitted adjustments to vouchers and inventories, the Navy is actually performing accounting within controlled tolerances other than zero. The employment of the whole-dollar concept in the Navy accounting system would still allow the accounting operation to be accomplished within the present accepted requirements and additional benefits would also be gained.

Present Applications of the Concept

Whole-dollar accounting is not a cure-all for it cannot be applied to accounts reflecting cash or third person accounts except as discussed in Chapter III. However, the concept has proven feasible and acceptable in numerous companies, the Naval Research Laboratory and the Post Office Department. The value of the concept was noted by Ralph A. Martin, the Controller of the Standard Oil Company of Ohio, who commented that whole-dollar accounting was one of the milestones which his company had passed on the road of clerical improvements.[4]

Applications of whole-dollar accounting have been employed to a certain degree by the Navy for a number of years in the disbursement of military pay, property accounting, stores accounts, and cost accounting.

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[4]Ralph A. Martin, "Where and How to Save Clerical Cost," Controlling Office Production, No. 140, (New York: American Management Association, 1955), p. 7.

Military personnel of the Navy are paid in whole dollar amounts except at the end of the fiscal and calendar years, at which times they are paid in exact dollars and cents. In paying in whole dollar amounts, the cents are not rounded off, but rather are maintained on the payrolls. When the accumulation totals a dollar, an additional dollar is paid.

In maintaining plant property account, the accumulated costs relating to a particular item of property are posted in whole dollar amounts. Differences that result from the elimination of pennies are accumulated by the month and the total of the differences is reported monthly in the Reconciliation of Plant Account (NavCompt Form 167). The report accounts for the basic receipt and expenditure documents flowing through the accounting system and provides for a current and balancing summary of plant property at each naval activity.[5]

When establishing unit prices of certain items of stock, the Navy rounds off the price, particularly in the Navy Stock Account.[6]

The whole-dollar accounting concept is utilized by the Naval Research Laboratory, Washington, D. C. in all of its internal accounts. The laboratory is financed by the Navy Industrial Fund

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[5] Navy Controller Manual, loc. cit., pp. 6-65-6-66.

[6] "No Cents May Save Us Dollars," Bureau of Supplies and Accounts Newsletter, (February, 1951), p. 8.

and functions as an Industrial-Commercial activity. With a budget of approximately $64 million in the Fiscal Year 1964, the Naval Research Laboratory has accumulated $900 in the variance account for a nine months period, which is compatible to previous years' accumulations. At the end of each fiscal year the variance account is closed out to the retained earnings account as a debit or credit.[7]

An example of the Navy accounting functioning within acceptable tolerances was noted in the Bureau of Supplies and Accounts Newsletter in 1951.[8] The Naval Aircraft Factory at Philadelphia purchased gasoline in tank cars from the Atlantic Refining Company. The quantity of gasoline being delivered was determined by sounding made by the company's inspectors. The soundings were converted into barrels or gallons at a prescribed temperature, and an invoice was prepared. The tank cars were normally delivered to the Navy activity in the early morning, at which time the Navy inspectors would take soundings and translate their readings in a like manner.

The two calculations rarely agreed and each time in "true Navy tradition" the payment was made on the calculation which indicated the lesser amount. After some months, the company

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[7]Interview with E. H. Breed, Comptroller, Naval Research Laboratory, Washington, D. C., April 28, 1964.

[8]"No Cents May Save Us Dollars," loc. cit.

accountants requested an interview. The Atlantic Refining Company's ledgers were filled with small debit and credit amounts, and the accountants requested that a test be run wherein the Navy would accept the company's billing and make payment thereon. Then after three months, the Navy would compare the total of the inspection report amounts with the total of the billings of the company for the same period. The company agreed that if there was a shortage, a check for the difference would be sent to the Navy immediately.

The test was made and at the end of three months the Navy figures indicated that the Navy had received a slight amount of gasoline over and above what the company had invoiced. The test proved that the company had been correct in its insistence that differences over a period of time were not worth the attention they were getting.

Military supply activities, including the Navy, which are functioning within the framework of the new Defense Supply Agency are utilizing the whole-dollar concept in some accounting reports. The Defense Supply Agency Comptroller's letter of April 19, 1963, as noted in Exhibit 3, directs applicable activities to provide summary report information in rounded whole dollars.

Much time and effort is still expended in the Navy, as illustrated by the letters included in Appendix C, in attempting to account for every penny. Aboard the ships, the letters were

EXHIBIT 3

DEFENSE SUPPLY AGENCY LETTER TO
MILITARY SUPPLY ACTIVITIES
CONCERNING WHOLE-DOLLAR
REPORTING

Headquarters
DEFENSE SUPPLY AGENCY
Cameron Station
Alexandria, Virginia

DSAH-CF
Comptroller Letter No. 16

19 April 1963

SUBJECT: Advance Notice of Changes to the Accounting and Finance Manual DSAM 7000.1

TO: Holders of Accounting and Finance Manual, DSAM 7000.1

1. The following instructions pertain to the reporting of data on the Expense Summary Report, DSA Form 86, and are effective immediately.

a. Money amounts in all columns will be reported in whole dollars. Fifty cents and above will be rounded to next higher while forty-nine cents and less will be dropped.

b. In the Total Expense column of the report after the Grand Total expenses for each allotment/suballotment, show the difference (in whole dollars)due to rounding so that total expenses will agree (in whole dollars) with total obligations reflected on the applicable Status of Funds Report.

2. The provisions of this letter will be incorporated into a future change to DSAM 7000.1.

BY ORDER OF THE DIRECTOR:

R. A. WILLIAMS
Captain, SC, USN
Deputy Comptroller
Defense Supply Agency

prepared and copies filed. The letters were mailed to the Navy Supply Depot where the accounting records were researched and adjustments initiated. The supply depot advises the ship of the action being taken by another letter and also advised the applicable Navy Regional Finance Center of the adjustment, who in turn makes the adjustment and officially provides the ships with a corrected document.

Navy Accounting

With a yearly Navy budget of approximately $15 billion,[9] the management of the money and material necessitates the development of systems and records to insure that:[10]

1. Money and material are not misused.
2. Authorized amounts are not exceeded.
3. Programs and projects can be accurately "costed" to permit evaluation for future budgeting.

The Navy has developed an intricate accounting system to accomplish these objectives with six major interrelated areas of accounting. The purpose of the accounting function is to comply with laws concerning accountability for funds and property and to provide service to management in the areas of budget formulation,

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[9] U. S. Navy Department, Navy Budget Digest, Nav Exos P-1355, (December, 1963), p. 30.

[10] U. S. Navy Department, Supply Management Problems-Part II, Supply Corps School NSCS 423-1, (December, 1963), p. 7-1.

budget execution, efficiency of operations and financial progress in the execution of plans. These six areas are:

1. Appropriation and fund accounting--which consists of the various levels as apportionments, allocations, suballocations, allotments, and suballotments plus the less formal operating targets.[11]

2. Inventory stores accounting--accounting for material inventories and the distribution of charges for the use of inventory.[12]

3. Plant property accounting--accounting for capital property, including plant property, minor property, ships, aircraft and missiles.[13]

4. Payroll accounting--the preparation of payrolls and the distribution of costs of military and civilian labor costs.[14]

5. Cost accounting--accounting for costs of operations, and in certain cases, the distribution of overhead costs.[15]

6. Program accounting--accounting for program packages in accordance with the Department of Defense program structure.

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[11] _Navy Comptroller Manual_, _loc. cit._, pp. 1-4.

[12] _Ibid._

[13] _Ibid._

[14] _Ibid._

[15] _Ibid._

Application of Whole-Dollar Accounting

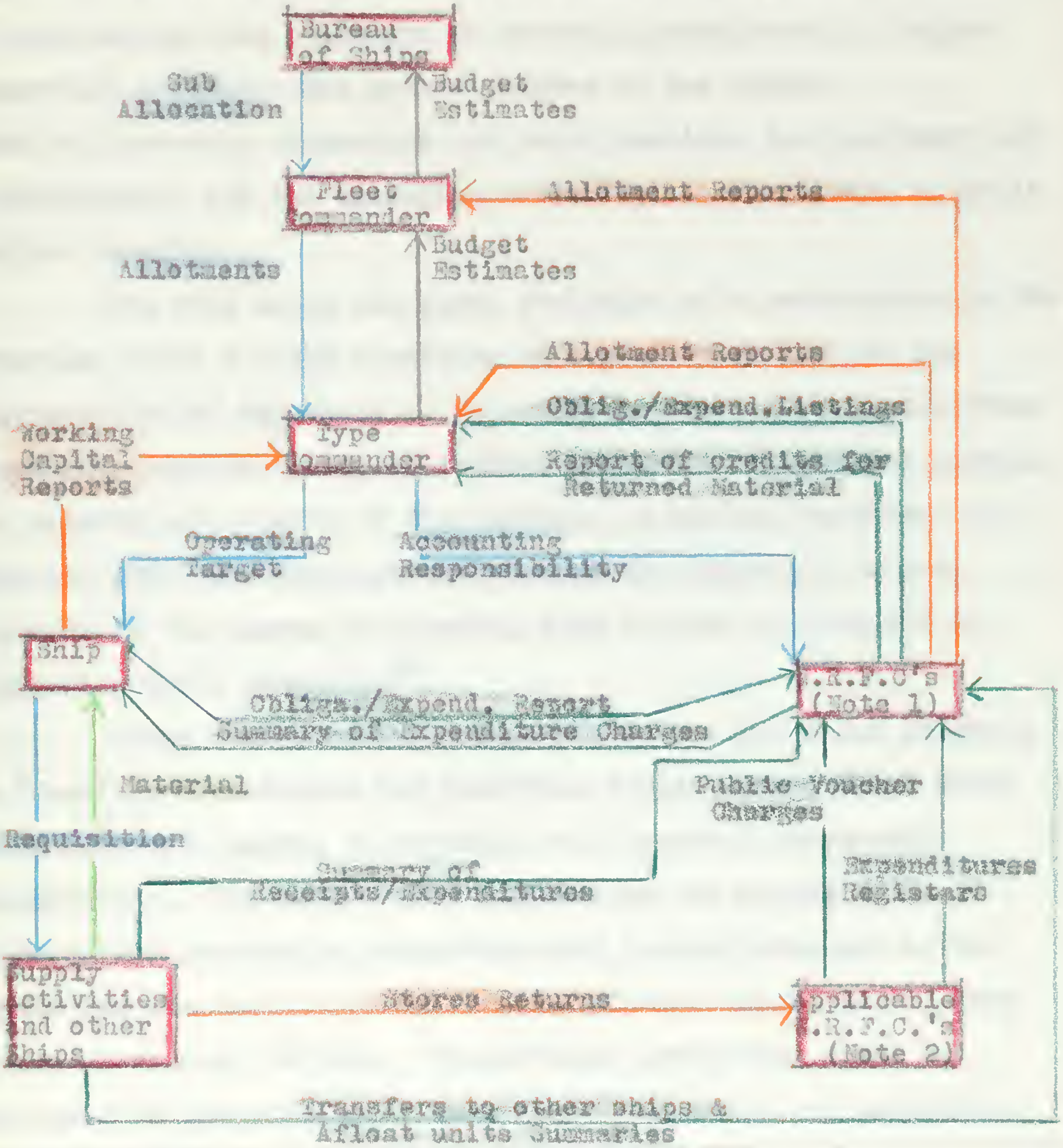
Basically, the accounting system of the Navy closely parallels that of private industry except for the appropriation and fund accounting portion which is more rigidly controlled by laws. The greatest majority of Navy accounting is being accomplished for internal purposes, and, as such, is again comparable to private industry. The legality of employing the whole-dollar accounting concept for the internal use in a governmental agency has been established in the case of Post Office Department (See Exhibit 2). Tolerance ranges in the form of authorized adjustments have been established in the Bureau of Supplies and Accounts Manuals and the Navy Comptroller Manuals. Depending on the category of the accounting, variance accounts could be maintained at the local level or amounts could be rounded off and ignored. Consider the appropriation accounting for ships, as illustrated by Figure 1.

Appropriation and Fund Accounting

Appropriations are developed for specific purposes, such as procurement, military pay, and operation and maintenance of the fleet and shore activities. These are further subdivided by various categories as to type of fleet or shore activities. These subdivisions are divided still further until each unit or activity is identified as being responsible for a certain portion of the

FIGURE 1

FUNDING AND ACCOUNTING FOR ACTIVE FLEET VESSELS
APPROPRIATION OPERATION AND MAINTENANCE, NAVY



NOTES: 1. Navy Regional Finance Centers, Norfolk and San Diego.
2. Navy Regional Finance Center in area of Activity or Ship.

appropriation. Thus the authority to obligate funds is granted a ship through the procedure of controls established in budget execution process. The entire process of the various subdivisions--the allocation and suballocation, the allotment and suballotment, and the operating targets--is accomplished in whole dollar amounts.

The ship being the final recipient of a subdivision is the starting point for the reporting of expenditures and for the introduction of thousands of primarily internal Navy transactions involving pennies. And, of course, thousands of repeated posting to records and reports of the pennies. A typical destroyer will process 3000-5000 transactions through its Operating Target records in the course of spending from $60,000 to $100,000 of operating funds annually.[16]

Under the Operating Target procedures the ships maintain a "Combined Requisition and Operating Target Record Book" which functions as a source of material and financial management information. The record book facilitates the accumulation of information concerning obligations and expenditures and is the basis for the monthly Obligation/Expenditure Report to the Navy Regional Finance Centers. Whole-dollar accounting could be employed in the posting of the obligation, which, of necessity,

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[16] Supply Management Problem-Part II, loc. cit., pp. 7-20.

are in certain instances estimates. Expenditures, likewise, could be recorded in whole dollar amounts, particularly if all Navy activities transacted their business in whole dollar amounts.

Assuming a ship requisitioned seven electronic tubes with a unit price of $4.75 from a supply center, although the exact total of the seven tubes amounted to $33.25, the amount posted as an obligation in the record book would be rounded to $33. The supply center issuing the tubes would carry them at the unit price of $4.75; however, when the data processing computer made the issue, the extension total of each item would automatically be rounded off. The cents eliminated would be accounted for in a cents elimination account and quarterly cleared out as an inventory adjustment. An expenditure to the ship would be reported by the supply activity in the amount of $33, to the Navy Regional Finance Center. The necessary reconciliation at the ship and Navy Regional Finance Center levels would be resolved with a considerable reduction in the number of digits to be posted, matched, and summarized. This same procedure would result in similar savings throughout the reporting system. It is acknowledged that in this one transaction the ship gained twenty-five cents in its Operating Target and the Navy Stock Fund lost twenty-five cents; however, with a multitude of transactions the gains and losses should resolve themselves at nearly a zero

difference. Monitoring of the variance accounts could be accomplished through the stores returns and at the bureau levels in the control ledgers.

Inventory Stores Accounting

Stores accounting involves property, appropriation, and cost accounting for the receipts of material into the custody of a supply officer and the expenditures of such material. The acquisition of certain material initially is funded by a revolving fund, the Navy Stock Fund, which is reimbursed by the appropriations chargeable for the use of the material. Certain other materials are procured by another Navy appropriation, the Appropriation Purchases Account, which is not reimbursed upon the issue of the material.[17]

Material purchased for both the Appropriation Purchases Account and the Navy Stock Account could have rounded off standard unit prices established immediately after procurement. Currently the Navy pricing policy for determining the price at which an item is to be carried on the stock records of the Navy allows some latitude. Paragraph 034001-3 of the Navy Comptroller Manual states that:

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[17] Navy Comptroller Manual, loc. cit., p. 4-3.

> Generally, the current purchase or production cost of an item, for the purpose of establishing a standard price, will be based upon evidence, such as current contracts, purchase orders, or invoices, but judgment will be exercised to arrive at a reasonably current price.[18]

In numerous instances at Navy Supply Depots and Centers, items with established standard prices are procured locally at prices considerably higher, due to purchases of smaller quantities, or considerably lower, due to new production techniques or other reasons. Since standard prices are only adjusted on an annual basis,[19] differences continually occur. Inasmuch as each item may only have one standard price, purchase adjustments are made to account for the differences. Small items of large quantities with estimated prices considerably less than a dollar could have standard unit prices in cents. Upon transfer or issue, the extensions could be rounded off as discussed previously, or in cases of small quantities, the appropriation could be charged and the items carried at no cost.

Stores Returns

Store returns for internal Navy reporting, such as the Navy Stock Account Returns,[20] Appropriation Purchases Account Returns,[21]

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[18] Navy Comptroller Manual, loc. cit., p. 4-5.

[19] Ibid.

[20] Ibid., pp. 4-111-4-112.

[21] Ibid., pp. 4-112-4-113.

General Mess Returns,[22] and Ship's Stores Returns,[23] are presently submitted to the Navy Regional Finance Centers and the Navy Finance Center, Cleveland, for reconciliation and consolidation. The returns are reported in exact dollars and cents, which requires considerably more typing than required for a return in whole dollar amounts.

In the quarterly preparation of a Ship's Store Operating Statement which occurs on approximately 800 ships in the fleet, the utilization of whole-dollar accounting would save an average of 100 typing strokes per statement (excluding the period and cents and not replacing them with dashes or zeros). (Note Figure 2) The verification of the stores return at the Navy Finance Center, Cleveland, would be more rapid, as noted in Chapter IV, as would the reconciliation of supporting documents and the consolidation of accounts for the Bureau of Supplies and Accounts. Documents supporting the returns would be converted to whole dollars, as illustrated in Figures 3 and 4, thus eliminating the perpetuation of cents throughout the reporting system. Acceptable tolerances could be established to insure the "accuracy" of the accounts.

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[22] U. S. Navy Department, Bureau of Supplies and Accounts Manual, III, (February, 1946, Rev.), pp. 7-79-7-82.

[23] Ibid., pp. 9-64-9-72.

FIGURE 2

SHIP'S STORE OPERATING STATEMENT

SHIP'S STORE OPERATING STATEMENT
NAV. S. AND A. FORM 234 (REV. 2-61)

BUSANDA REPORT 7330-5

SHIP	ACCTG. NO.	PERIOD
(3606) USS FARGO (CL106)	3606	1 Jan 1963 to 31 Mar 1963

FORECASTED SALES (Ship's store)	PERIOD (From)	(To)	AMOUNT
	1 April 1963	30 June 1963	$ 45,000.00

1. CASH FROM SALES PER CASHBOOK INCLUDING EXCISE TAX *(Excluding vending machine sales)*		32,863.85	
2. EXCISE TAX		63.33	
3. NET CASH FROM SALES *(Line 1 minus line 2)*			32,800.52
OPERATING EXPENSES			
4. COST OF SALES - RETAIL *(Excluding bulk, clothing and vending machine)*	21,039.26		
5. SALES AT COST a. FROM BULK STORES	100.00		
b. FROM CLOTHING	9,626.80		
6. SURVEYS TO PROFIT	14.50		
7. MARKDOWNS BELOW COST	40.00		
8. COST OF OPERATION - MATERIAL	324.00		
9. TOTAL *(Lines 4 through 8)*		31,144.56	
10. EQUIPMENT	1,256.00		
11. VENDING MACHINE SERVICE CHARGES			
12. LAUNDRY CLAIMS	1.96		
13. LAUNDRY AND DRY CLEANING SERVICE CHARGES			
14. TOTAL *(Lines 10 through 13)*		1,257.96	
15. TOTAL OPERATING EXPENSES *(Total lines 9 and 14)*			32,402.52
16. GROSS OPERATING PROFIT *(Line 3 minus line 15)*			398.00
NONOPERATING EXPENSES			
17. REPAYMENT OF NSSO LOANS *(Excluding vending machine loans)*			
18. GENERAL FUND ASSESSMENT (1½ % of line 3 minus lines 5a and 5b)		346.11	
19. TOTAL NONOPERATING EXPENSES *(Total lines 17 and 18)*			346.11
20. NET PROFIT *(Line 16 minus line 19)*			51.89
21. EXCESS PROFITS *(Line 20 minus 15% of line 4)*			0
22. NET PROFIT AVAILABLE *(Line 20 minus line 21)*			51.89
23. NET PROFIT BROUGHT FORWARD *(Line 31, previous return)*		2,558.84	
24. CONTRIBUTIONS TO SHIP'S STORE PROFITS			
25. NSSO LOANS/GRANTS a. LOANS/AUTHORITY NavShipSto ltr Ser: 324 of 1/10/63		1,256.00	
b. GRANTS/AUTHORITY			
c. MISCELLANEOUS			
26. SURVEYS CHARGEABLE TO GENERAL FUND			
27. VENDING MACHINE PROFIT *(From line 39)*		857.09	
28. TOTAL OTHER RECEIPTS *(Lines 23 through 27)*			4,671.93
29. TOTAL AVAILABLE FOR TRANSFER *(Line 22 plus line 28)*			4,723.82
30. EXPENDITURE BY PUBLIC VOUCHER OF SHIP'S STORE PROFITS: a. NO. 138 DATED 14 January 1963		2,558.84	
b. NO. DATED			
c. NO. DATED			
d. NO. DATED			2,558.84
31. NET PROFIT CARRIED FORWARD *(Line 29 minus lines 30a, b, c, d)*			2,164.98
VENDING MACHINES — 32. CASH FROM VENDING MACHINES PER CASHBOOK			2,285.95
33. COST OF SALES	961.51		
34. COST OF OPERATION	157.35		
35. SURVEYS	10.00		
36. TOTAL *(Lines 33 through 35)*		1,128.86	
37. LOAN REPAYMENT *(Bal., beginning of Qtr: $1256)(Bal., end of Qtr: $956)*		300.00	
38. TOTAL *(Lines 36 and 37)*			1,428.86
39. NET PROFIT *(Enter on line 27, above)*			857.09

NET CASH FROM SALES EQUALS TOTAL SALES (EXCLUDING VENDING MACHINES) REPORTED ON FINANCIAL CONTROL RECORD

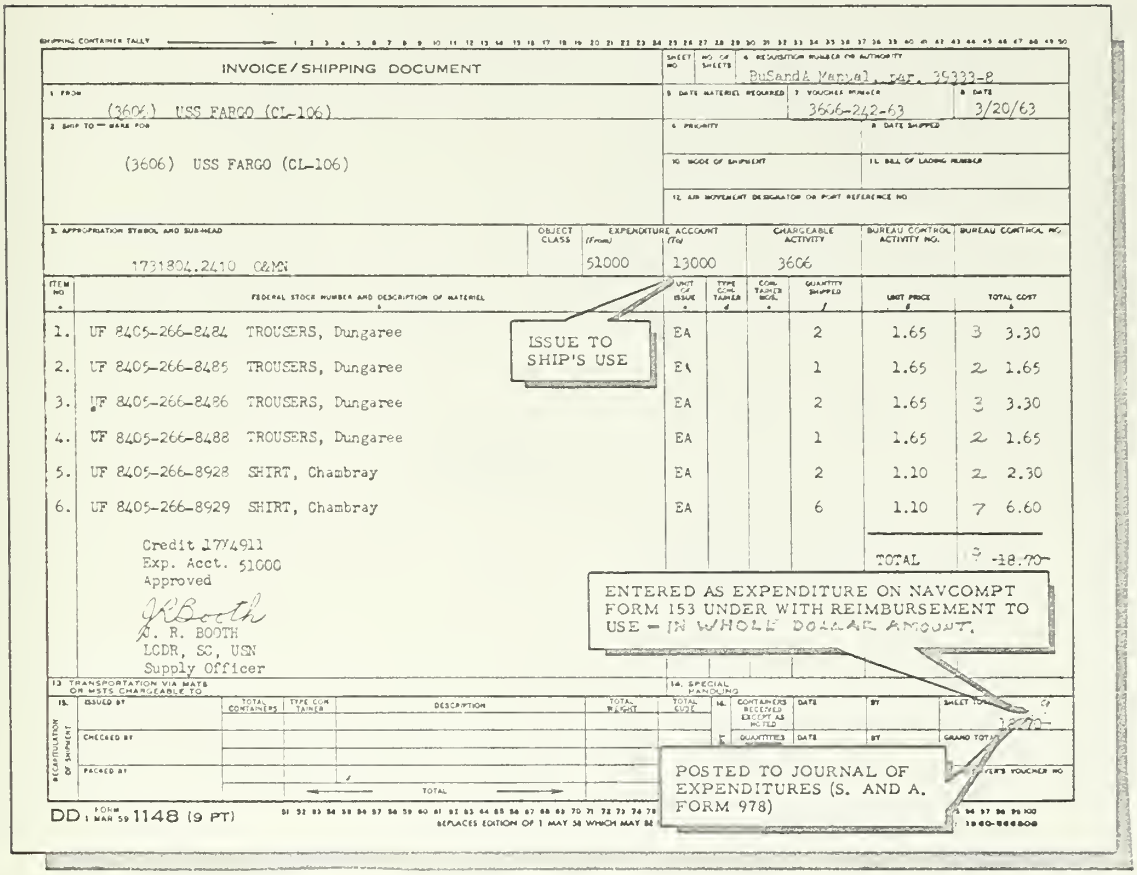
INCLUDE ONLY DRINK VENDING MACHINES IN THIS SECTION

I CERTIFY THAT THE ABOVE STATEMENT OF OPERATIONS IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF	DATE	ACCOUNTABLE OFFICER *(Signature and Name)*
	3 Apr 1963	J. B. BOYER, LCDR, SC, USN

Utilizing whole-dollar accounting throughout the statement results in a Net Profit carried forward of $2,164.

FIGURE 3

ISSUES TO SHIP'S USE INVOICE


SHIPPING CONTAINER TALLY

INVOICE/SHIPPING DOCUMENT

4. REQUISITION NUMBER OR AUTHORITY: BuSandA Manual, par. 39333-8

1. FROM: (3606) USS FARGO (CL-106)

7. VOUCHER NUMBER: 3606-242-63

8. DATE: 3/20/63

2. SHIP TO — MARK FOR: (3606) USS FARGO (CL-106)

3. APPROPRIATION SYMBOL AND SUBHEAD: 1731804.2410 O&MN

EXPENDITURE ACCOUNT (From): 51000 (To): 13000

CHARGEABLE ACTIVITY: 3606

ITEM NO	FEDERAL STOCK NUMBER AND DESCRIPTION OF MATERIEL	UNIT OF ISSUE	QUANTITY SHIPPED	UNIT PRICE	TOTAL COST
1.	UF 8405-266-8484 TROUSERS, Dungaree	EA	2	1.65	3 3.30
2.	UF 8405-266-8485 TROUSERS, Dungaree	EA	1	1.65	2 1.65
3.	UF 8405-266-8486 TROUSERS, Dungaree	EA	2	1.65	3 3.30
4.	UF 8405-266-8488 TROUSERS, Dungaree	EA	1	1.65	2 1.65
5.	UF 8405-266-8928 SHIRT, Chambray	EA	2	1.10	2 2.30
6.	UF 8405-266-8929 SHIRT, Chambray	EA	6	1.10	7 6.60
				TOTAL	~~18.70~~

Credit 1774911
Exp. Acct. 51000
Approved

J. R. Booth
J. R. BOOTH
LCDR, SC, USN
Supply Officer

13. TRANSPORTATION VIA MATS OR MSTS CHARGEABLE TO

14. SPECIAL HANDLING

15. ISSUED BY / CHECKED BY / PACKED BY

DD FORM 1 MAR 59 1148 (9 PT)

REPLACES EDITION OF 1 MAY 58 WHICH MAY BE USED

One of the supporting documents for the Ship's Stored Return submitted to the Navy Finance Center Cleveland.

In the event that inventories would be maintained in exact dollars and cents, extensions would be computed and converted to rounded off dollar amounts for reporting purposes.

FIGURE 4

LOSS BY INVENTORY INVOICE

SHIPPING CONTAINER TALLY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

INVOICE/SHIPPING DOCUMENT

SHEET NO. | NO. OF SHEETS | 4 REQUISITION NUMBER OR AUTHORITY: BuSandA Manual, par. 39402-3

1 FROM: (3606) USS FARGO (CL106)

5 DATE MATERIEL REQUIRED | 7 VOUCHER NUMBER: 3606-253-63 | 8 DATE: 3-31-63

2 SHIP TO — MARK FOR: LOSS BY INVENTORY

8 PRIORITY | 9 DATE SHIPPED

10 MODE OF SHIPMENT | 11 BILL OF LADING NUMBER

12 AIR MOVEMENT DESIGNATOR OR PORT REFERENCE NO.

3 APPROPRIATION SYMBOL AND SUBHEAD	OBJECT CLASS	EXPENDITURE ACCOUNT (From)	(To)	CHARGEABLE ACTIVITY	BUREAU CONTROL ACTIVITY NO.	BUREAU CONTROL NO.
17X4911 NSF		51000	99001	3606		

ITEM NO. a	FEDERAL STOCK NUMBER AND DESCRIPTION OF MATERIEL b	UNIT OF ISSUE c	TYPE CONTAINER d	CONTAINER NOS. e	QUANTITY SHIPPED f	UNIT PRICE g	TOTAL COST h
	LOSS BY INVENTORY	M. V. O.					22.63
						Total	22.63

C. R. Booth
C. R. BOOTH
LCDR, SC, USN

REPORTED ON NAVCOMPT FORM 153 AS MATERIAL LOSS: INVENTORY IN WHOLE DOLLARS

13 TRANSPORTATION VIA MATS OR MSTS CHARGEABLE TO | 14 SPECIAL HANDLING

15 RECAPITULATION OF SHIPMENT: ISSUED BY | CHECKED BY | PACKED BY | TOTAL CONTAINERS | TYPE CONTAINER | DESCRIPTION | TOTAL WEIGHT | TOTAL | 16 CONTAINERS | DATE | BY | SHEET 23 | 17 RECEIVER'S VOUCHER NO.

POSTED TO JOURNAL OF EXPENDITURES (S. AND A. FORM 978)

DD FORM 1 MAR 59 1148 (9 PT)

REPLACES EDITION OF 1 MAY 58 WHICH MAY BE USED

U. S. GOVERNMENT PRINTING OFFICE 1959 O-523501

One of the supporting documents for the Ship's Stores Return submitted to the Navy Finance Center Cleveland.

In the event that inventories would be maintained in exact dollars and cents, documentation of losses could be in exact amounts, however for reporting purposes, only rounded dollar amounts would be used.

Plant Property Accounting

As previously discussed, whole-dollar accounting is currently authorized in preparing the Reconciliation of Plant Account (NavCompt Form 167).[24] Individual record cards, however, are still maintained in dollars and cents in accordance with the Navy Comptroller Manual instructions.[25] Private industries that utilize the whole-dollar accounting concept maintain all property accounts in whole dollars. The amounts are rounded off before they are posted to the property accounts with the pennies eliminated debited or credited to the penny elimination account. Depreciation is also effected in whole dollar amounts.[26] The Navy could readily adopt the whole-dollar concept in the maintenance of the plant property records.

Depreciation is only applied to Navy plant property at industrial-commercial activities. Currently the Navy Comptroller allows that the monthly depreciation figure can be rounded off; however, latitude is given to maintain certain depreciation charges in dollars and cents. Quoting from the Navy Comptroller Manual concerning the method of computing the depreciation:

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[24] Navy Comptroller Manual, loc. cit., p. 6-66.

[25] Ibid., pp. 6-35-6-37.

[26] Florence A. May and Herbert F. Klingman, Whole-Dollar Accounting, (New York: Controllership Foundation, Inc., 1957), pp. 57, 65-66, 119.

> To obtain the monthly depreciation figure, the cost of the item will be divided by the number of months of estimated life of the property. The resulting figure will be rounded off to the nearest dollar by dropping the amount between one cent and forty-nine and adding one dollar for any amount between fifty and ninety-nine cents. Property record cards currently in existence that have depreciation rates to the nearest cent need not be changed. When depreciation charges and reserves are computed mechanically on electric accounting machines resulting in exact amounts, rounding off to the nearest dollar is not required.[27]

The whole-dollar accounting concept could be applied to all plant property accounts with all recorded amounts rounded off as of a specific date. Computation of depreciations could easily be programmed on electronic data processing computers which would provide properly rounded off dollar amounts and accumulate the differences that are created.

Cost Accounting

Cost accounting in the Navy as in private business is ideally suited for the employment of whole-dollar accounting, as evidenced by the installation of the concept at the Naval Research Laboratory, Washington, D. C.[28] The distribution of costs and the application of overhead, especially with the inclusion of indirect costs and depreciation provide a basis for converting all figures

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[27] Navy Comptroller Manual, loc. cit., p. 6-93.

[28] Interview with E. H. Breed, Comptroller, Naval Research Laboratory, Washington, D. C., April 28, 1964.

to whole dollar amounts. The application of the concept could be employed at all the industrial-commercial activities financed by the Navy Industrial Fund. These activities include twelve shipyards, seven overhaul and repair facilities for aircraft, eight ordnance type activities, thirty publications and printing service activities, seven public works centers, and several other activities.[29] The direct costs of production are generally accumulated by customer order. Overhead is accumulated by cost center and distributed to production orders on a percentage basis.

Modified industrial activities which are financed by annual or continuing appropriations could also utilize the whole-dollar accounting concept. Included in this category are five laboratories and experimental activities, twelve ordnance and weapon installations, two repair facilities and a few others.[30] At these activities overhead costs are charged to an open allotment and also accumulated in detail. Some of the activities also use a cost center concept and have overhead distributed to production orders on a percentage basis.

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[29] Navy Comptroller Manual, loc. cit., pp. 1-5-1-7.

[30] Ibid., p. 1-7.

Payroll Accounting

The primary application of the whole-dollar accounting concept to payroll accounting is in the area of labor distribution which follows the employment of cost accounting techniques at most shore activities to provide efficiency information at nonindustrial activities and cost information at industrial-commercial and modified industrial activities. Minor utilization of the whole-dollar concept in effecting Navy pay in whole dollar amounts has been discussed previously in this chapter.

CHAPTER VIII

SUMMARY

The Problem

Each year greater pressure by Congress is placed upon the Department of Defense, and this on the Navy for greater economy and more efficiency, and accordingly there have been demands for more financial controls. To effect economy and efficiency, the Navy has applied modern management techniques, installed automatic data processing systems, and employed numerous work simplification methods to all parts of the Navy management field including the area of accounting. In accounting, procedures have been revised, automation has been implemented and reports have been revised or eliminated, but so far the basic ingredient of all the accounts, records and reports--the monetary amounts represented in dollars and cents--has not been considered.

Not accounting for the cents has been employed by certain segments of the business world for three decades with considerable success. The concept of whole-dollar accounting has many labor saving aspects which could well be utilized to good advantage in Navy accounting to effect greater economy and efficiency.

Concept Employed for Three Decades

The concept of whole-dollar accounting has been employed for over three decades in private industry. F. A. Shick, as the Comptroller of the Bethlehem Steel Corporation, is credited as being the pioneer of the concept. He proposed and installed the concept in the corporation in 1927 and except for one minor modification, the original instructions are still being followed today. Though the concept was a success from the start at Bethlehem Steel, it was not publicized nationwide until Mr. Shick wrote an article on the subject in 1941.

Accountants were skeptical of a concept that proposed eliminating the pennies they had "balanced to" for years, and although some interest was shown in the early forties, the new concept was set aside during war years. After World War II, interest in work simplification methods increased and accountants took another look at the whole-dollar concept and dozens of companies adopted the concept without any reported failures. During the early fifties, even certain segments of the Federal Government became interested in the concept. The Internal Revenue Department allowed the use of rounded off dollar amounts on income tax returns, and more significantly, the Post Office Department adopted whole-dollar accounting for use throughout its accounting system, and the Naval Research Laboratory, Washington, D. C.

employed the concept on all of its internal accounts.

With the advent of electronic computers in the late fifties, the emphasis on work simplification shifted to that of whole-dollar accounting was again temporarily set aside. Finally in the sixties with the computer becoming common place and with information and paper flow increasing at tremendous rates, the need for efficiency in operations is again gaining importance. Two major problems have developed in many computer installations--the storage capacity of the computer and the conversion of source data into a form that can be accepted by the computer. The elimination of cents in accounting records and transactions can aid in the reduction or relief of both of these problem areas.

The work simplification concept of whole-dollar accounting simply consists of recording accounting entries in whole dollar amounts, at the earliest practicable point in the accounting sequence. The cents that are thus eliminated are not discarded, but rather are accounted for separately or are rounded off to whole-dollar amounts. Usually the rounding off process is accomplished by reducing the amounts below 50 cents to the next lower whole dollar and increasing amounts above 50 cents to the next higher whole dollar. Even half dollars are rounded off to the nearest even dollar. In certain instances experience has indicated that other cutting or rounding off points may be necessary.

The reasoning behind the whole-dollar accounting technique is based on the fact that there is a point beyond which the expense of accounting for cents outweighs their significance and where adequate results can still be obtained if records are kept within acceptable tolerances. In addition, it is acknowledged that many figures in accounting are actually based on estimates and to present such amounts down to the penny gives an illusion of accuracy which really does not exist.

Concept Applications

The benefits gained by the employment of the whole-dollar accounting concept depend upon the extent to which it is employed. Basically, the concept can be used in all accounts except those involving cash or a third person, such as accounts receivable and payable, and payroll accounts. Some companies have even resolved the problem of dealing in cents in third person accounts by making reciprocal agreements to bill or be billed in whole dollars. In addition to the benefits gained in balance sheet and income accounts, further advantages can be obtained by using the whole dollar concept in financial statements and reports including budgets, internal management reports, tax returns and reports to the Securities and Exchange Commission.

When employing the concept companies account for the cents which are dropped or rounded off in various ways. When close tolerances of accuracy are not required, the cents are eliminated

without any further accounting. In most cases, however, the cents are credited or debited to a penny elimination account which has been given a variety of titles. Instead of creating a new account, some companies have utilized previously established accounts as Estimated Uncollectible Accounts Receivable and Commercial Discount accounts to account for the cents.

Dollars and cents should be separated in the applicable accounts as soon as possible in the accounting system. Once the cents are eliminated they should never be reintroduced during distribution of costs or other internal processing. In the event that additional breakdowns of cost are required, all breaking points would be made at whole dollar amounts. Although third person accounts are not normally adaptable to the concept, the necessary internal distributions from these accounts are, for example, labor distributions can readily be accomplished in whole dollar amounts.

Unit prices of individual inventory items are usually maintained in dollar and cents amounts with the conversion to whole dollar amounts being made in the extension process. Numerous issues of single items with unit prices of less than a dollar could create distortions if the whole dollar concept is employed. Two methods of resolving this problem are to pre-extend the items or to make extensions in exact amounts and periodically round off the totals accumulated.

Advantages and Disadvantages

The users of the whole dollar accounting have cited many advantages of the concept. The major advantages noted were the simplicity and easy implementation, the reduction of work, the reduction of errors, the increased productivity, the reduction of statement and report time, the improved quality of reports, and the improvement of morale. In addition to these advantages, it was noted that accounting personnel appeared more willing to come forth with suggestions and improvements which developed into improved two-way communications. Although not necessarily an advantage, it should be noted that there is no mention of any unsuccessful applications of the concept in the readings cited, nor had the Controllers Institute in their research found any. Once a company has implemented the concept, it has never reverted to the old system of accounting for the cents.

None of the companies that has employed the concept has reported any major limitations or disadvantages. Theoretically, there are some disadvantages possible which might occur with inexperience, though none has actually been reported. Either the hypothetical disadvantages did not occur or in the few instances in which they did, corrective action promptly eliminated them. Among the hypothetical disadvantages cited by the skeptics has been that of the development of large variances. This has been

disproven by many companies that have employed the concept for years with resulting small net variances. Other purported disadvantages cited by the skeptics, such as, that the concept abandons the double entry principle, that the concept will encourage carelessness and lead to padding of accounts and that the concept is more trouble than it is worth, have all been disproven in the actual application of the concept.

Legality of the Concept

The legality of the concept in government applications has been basically established by the Comptroller General's decision which authorized the adoption of whole-dollar accounting in the Post Office Department in 1953.

Conclusions

The concept of whole-dollar accounting has been employed successfully for many years in private industry and also by the Post Office Department and the Naval Research Laboratory, Washington, D. C. Its advantages outweigh the few purported disadvantages. The legality of the concept for government accounting has been established by the Post Office Department adoption which was approved by the Comptroller General of the United States.

The accounting system of the Navy closely parallels that of private industry except for the appropriation and fund portion, and even there the greatest majority of the accounting is for internal Navy purposes. Throughout the Navy supply and accounting system adjustments are effected to correct differences, which actually is accounting within controlled tolerances. Accordingly, it appears that the concept of whole-dollar accounting is applicable and adaptable to the Navy accounting system in many areas.

Should the Navy adopt the whole-dollar accounting concept in its accounting and supply systems, greater efficiency would be realized at all levels. A gradual conversion to the utilization of the concept for all internal Navy accounts and reports could be made without complicated training or lengthy directives. This has been demonstrated by the ease at which the concept has been implemented in private industry and government. Initially the procedures presently utilized by the Naval Research Laboratory, Washington, D. C. could be employed by other industrial-commercial and modified industrial activities with or without further modifications. Next, Stores Returns and all statistical reports could be prepared in whole dollar amounts from documents containing exact dollars and cents. Finally, all internal Navy accounting transactions could be accomplished in whole dollars.

APPENDIX A

BETHLEHEM STEEL CORPORATION ACCOUNTING ORDER #9
"ELIMINATION OF CENTS FROM ACCOUNTING RECORDS"

This is the only internal directive which the company has concerning the application of the whole-dollar accounting concept. The procedure was developed in 1927 and has remained basically the same except for a minor modification in handling merchandise sales.

ELIMINATION OF CENTS FROM ACCOUNTING RECORDS

101 **General:**

101.1 The effect of cents values in accounts is deemed of such small importance that they should be eliminated from all records except where it is necessary to know the exact cents values as in accounts receivable, accounts payable, cash and their controlling accounts.

101.2 The manner of dealing with this problem is treated under the following captions:

General ledger
Merchandise sales
Property accounts
Accounts receivable
Accounts payable
Payroll and cost
Inter-plant and inter-company transactions
Reports and forms

101.3 In the elimination of cents from accounting records the "give and take" method is applied to amounts in numerous entries which are described in the following paragraphs. This method operates as follows: in cases where the cents' amount is 50 or greater, the amount is raised to the next higher whole dollar amount; conversely, where the cents' amount is less than 50 the amount is reduced to the whole dollar amount only.

102 **General ledger:**

102.1 Since the general ledger must reflect the actual transactions of all accounts, insofar as they affect income accounts and the balance sheet, the cents affecting all avenues of accounting work must find disposition through the general ledger accounts. Accounting work, however, should be so outlined as to segregate entries into the general ledger as between dollars and cents, dealing only with totals. For example: The total amount of bills rendered should be obtained as to whole dollars and cents separately, as later explained, so that the entry requires charging account *9803-100—Accounts and notes receivable—Public* with the exact amount of dollars and cents of the billings, crediting account *9825-200—Merchandise sales* with the full amount of dollars only, and crediting the difference to account *9825-400—Commercial discount—Purchases.* Thus, it will be seen that the accounts receivable controlling account, because it controls customers' accounts which are charged in the exact amount of bills rendered, should be in both dollars and cents. The same principle applies to *Accounts payable* and *Cash*, both of which should be maintained for the purpose of exact control.

102.2 Entries originating in the general ledger division affecting the general ledger are usually prepared in whole dollars, although in some cases a debit or credit may be in dollars and cents which then requires a debit or credit to an adjustment account. Entries affecting *Profit and loss* should be prepared in whole dollars. In order to prepare statements and reports of a general ledger character it is necessary first to prepare a trial balance of the exact balances in the accounts, and, for the first 11 months in the year the difference between total cents "Debits" and total cents "Credits" should be carried in a *Cents adjustment* account. In December, however, the balances should be adjusted to whole dollars by the "give and take" method.

103 **Merchandise sales:**

103.1 This account should reflect the income from sales and the cost applying thereto. The sales value credited to the various merchandise sales classes applying to all products should represent the cumulative total whole dollars to the nearest dollar in each invoice, or product account of such invoice, applying thereto.

103.2 The elimination of cents from the merchandise sales product accounts should be accomplished through the billing division's system of invoicing (ref. Div. 9A - Section 5) and registration (ref. Div. 9A - Sec. 14), whereby the accounts receivable value (including

cents) shown on each invoice is properly distributed between merchandise sales (dollar) value, cents elimination, and provisions for transportation, etc.

103.3 At the end of the monthly accounting period, the accumulation of the amount from all register controls should be credited to the merchandise sales account by plant and product, while the dollars, only, of the accumulation of cents should be credited to *Merchandise sales—General plant—Cents elimination.* The remaining cents should then be credited to account *9825-400—Commercial discount— Purchases.* Thus, the accumulation of all invoices and of all register controls for the month can be summarized by the following entry for the procedure set forth above.

			Debit	*Credit*
Account *9803-100*	—Accounts and notes receivable—Public		$33,002.62	
Account *9825-200*	—Merchandise sales (various product accounts by plant)	$32,896.00		
Account *9825-200*	—Merchandise sales—(Cents elimination, general plant)	1.00		$32,897.00
Account *9825-400*	—Commercial discount—Purchases			.34
Account *9812-2xx*	—Accounts payable—Transportation (public)			77.28
Account *9815-902*	—Provision for sales commission			28.00

103.4 The procedure for handling merchandise sales accounts is set forth in Div. 9A - Sec. 14. The provision for transportation should be accounted for in dollars and cents as set forth in Div. 9A - Sec. 13.

103.5 By this process of using dollars only as product sales value, benefit is derived in the distribution of such value by commodities and by sales districts. The elimination of the cents in these values has no material significance in determining unit rates of costs, sales or profits.

104 **Property accounts:**

104.1 Property accounts should be maintained in whole dollars, and entries, whether from manufacturing operations or purchases, should be originated upon that basis. Credits for salvage, dismantling, and depreciation and amortization, and contra entries thereto, should also be expressed in whole dollars.

105 **Accounts and notes receivable:**

105.1 Customers accounts should be kept in the actual amount of the invoice, and entries affecting such accounts, whether for invoices, debit memoranda, transportation adjustments, or cash, should be entered in exact amounts of dollars and cents.

106 **Accounts payable:**

106.1 Vendors' accounts and all entries pertaining thereto should reflect the actual amount in both dollars and cents. The amounts of the entries, when listed on a special register sheet, should be subdivided between the whole dollars and the cents and separate cumulative totals obtained.

106.2 The total of the cents should be charged to account *9825-400—Commercial discount—Purchases* and the total of the dollars should be charged to the operation affected where final distribution should be made to the appropriate works ledger accounts such as construction, inventories, operating expenses, etc.

106.3 When the whole dollar amount of an entry affecting a vendor's account should be distributed to more than one works ledger account on a percentage basis, it may be necessary to adjust the amount obtained for each account by the "give and take" method in order that each account may be charged in whole dollars but the combined totals of the accounts affected should not exceed the whole dollar amount registered.

107 **Payroll and cost:**

107.1 This division of the work is divided into the following captions:

Payroll
Labor distribution
Stores supplies distribution
Material distribution
Transportation distribution
Operating expense ledgers
Inventory ledgers
Works ledgers
General

107.2 *Payroll:* Earnings of employees should be calculated and paid in the exact amounts. The distribution of labor falls into three classes; namely, that which should be charged to process costs, that which should be charged to job order costs, and that which should be charged to operating expense accounts and other miscellaneous accounts. The amount of wages under either class should be charged to the respective accounts in whole dollars, and the cents difference, through the "give and take" method, should be charged or credited to inventory account *Cents elimination.*

107.3 *Labor distribution:* Labor distribution should be accumulated upon a time and amount basis. The time and amounts should be accumulated over periods embracing 5 to 10 days, dependent upon local requirements, and at such time the accumulated total of the hours or amounts charged against each account should be adjusted to a whole hour basis. At the month-end the accumulated whole hours should be resolved into whole dollars, adopting the method of "give and take" for the cents in each extension.

107.3–1 In exceptional cases, when a distribution involves rendering invoices for the exact cost incurred, usually applying to miscellaneous accounts, such as account *Miscellaneous services and supplies for others*, while the cost accounts should be charged in the same manner as all other accounts on the whole dollar basis, there should be an additional record maintained for billing purposes only upon a dollar and cents basis.

107.4 *Stores supplies distribution:* This category applies to miscellaneous stores supplies mainly of an operating expense character. At the time of their accumulation for cost accounting purposes, generally two or three times each month, the credit amount should be established in whole dollars, by giving or taking on the net cents in the aggregate of all requisitions (by totaling the dollars and cents in the same addition), and the debits should also be adjusted to the whole dollar to agree exactly with the amount of the credit determined for the value of all stores supplies issued. Requisitions affecting charges to account *Miscellaneous services and supplies for others* and requiring the billing of the exact cost, should be treated dually, the same as explained for labor, namely, costs should be charged on the whole dollar plan, while the exact amount should be accumulated for billing purposes.

107.5 *Material distribution:* This category applies to materials other than miscellaneous stores supplies. Charges to cost and credits to inventory accounts covering the use of such materials should be accumulated periodically by cost and inventory accounts and cents eliminated from the totals of such charges and credits to the respective cost and inventory accounts on the "give and take" method. Since inventory accounts should be maintained on the whole dollar basis the cents can only arise from the individual calculations of quantity times unit rate.

107.6 *Transportation distribution:* Inbound transportation paid by the works accounting department should be charged to account *Unaudited bills—Transportation*, in dollars and cents. Charges to accounts should be accumulated in dollars and cents but distribution to the various accounts should be in whole dollars on the "give and take" method and the cents remaining charged or credited to account *Cents elimination.*

107.6–1 Outbound prepaid transportation should be charged to account *Unaudited bills—Transportation*, in dollars and cents and the total amount of such transportation should be cleared from the account each month by a journal entry crediting account *Unaudited bills—Transportation* in dollars and cents, debiting account 983x-xxx—*Home office* in whole dollars, and the cents difference, determined on the "give and take" method should be debited or credited to account *Cents elimination*. The transfer of the amount of outbound transportation from the works ledgers to the general ledgers (home office) should be accomplished by preparing a home office journal entry charging account 9812-2xx—*Accounts payable—Transportation* (*public*), and crediting account 983x-xxx—*Home office* in whole dollars.

107.7 *Operating expense ledgers:* It is apparent, since labor and stores supplies should be charged upon the whole dollar basis, and inter-department services distributed or charged upon the same basis, that all operating expense accounts should be accumulated in whole dollars only. The credits to such accounts, whether to process costs, inter-department accounts or manufacturing orders, should also be determined to the whole dollar upon the "give and take" method.

107.8 *Inventory ledgers:* With the exception of the accounts *Cents elimination* and *Unaudited bills—Transportation*, all the accounts in the inventory ledgers should be on the whole dollar plan, even though the unit rate of value is expressed in figures that make it impossible to resolve a quantity into whole dollars. The cents of such extensions should be eliminated through the method of "give and take." All accounts, with the exceptions noted, should be charged and credited in whole dollars. The account *Cents elimination* should reflect all debit and credit cents adjustments arising from entries as previously explained. The account *Unaudited bills—Transportation* should represent the exact amount of transportation. The balance remaining at the close of an operating cost period should represent the undistributed transportation and should be expressed in dollars and cents.

107.9 *Works ledgers:* The following accounts in the works ledger should be maintained in dollars and cents: 9801-xxx—*Cash*, 9803-xxx—*Accounts and notes receivable*, 9804-xxx—*Inventories* (*Cents elimination* and *Unaudited bills—Transportation* accounts only), 9812-xxx—*Accounts payable*, 9813-xxx—*Taxes withheld* and 9815-xxx—*Accrued liabilities* (employees and public payment accounts only). All other accounts such as property and provision accounts should be carried in whole dollars.

107.9–1 Reports and statements, concerned with the accounts carried in dollars and cents, should be prepared in dollars and cents with the exception of report 3—*Works ledger trial balance* which should be prepared in whole dollars, showing the accumulation of cents after the caption "Adjustment of cents."

107.10 *General:* All entries to account 9809-210—*Inter-company balances—Plant—General* and account 983x-xxx—*Home office* should be in whole dollars. If cents must be transferred to another plant or division, account *Cents elimination* should be charged or credited on the receiving plant's journal voucher and account *Cents elimination* should be credited or charged on the forwarding plant's journal voucher. If cents must be transferred to the home office, account 9825-400—*Commercial discount—Purchases* should be charged or credited on the home office journal voucher and account *Cents elimination* should be credited or charged on the plant's journal voucher.

108 Inter-plant and inter-company transactions:

108.1 Accounting for inter-plant transactions (including inter-company billings) should be conducted through account 9809-210—*Inter-company balances—Plant* on a whole dollar basis, excepting inter-company billings between railroads, which should be in dollars and cents. For end of period accounting the cents should be eliminated by the "give and take" method for statement purposes only.

108.2 Accounting for inter-company transactions which should be conducted through account 9809-100—*Inter-company balances—Home office* may include dollars and cents,

since certain of the accounts involved require this accounting (as explained in previous paragraphs). The accounts *9809-100—Inter-company balances—Home office* and *9809-3xx—Inter-company balances—Companies* may contain dollars and cents. For end of period accounting the cents should be eliminated by the "give and take" method for statement purposes only.

109 **Reports and forms:**

109.1 All reports should be rendered on the whole dollar basis, except for reports dealing with home office general ledger accounts which should be maintained in dollars and cents; forms should be prepared accordingly.

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APPENDIX B

CORRESPONDENCE CONCERNING IMPLEMENTATION OF THE WHOLE-DOLLAR ACCOUNTING CONCEPT AT THE NAVAL RESEARCH LABORATORY, WASHINGTON, D. C.

The first letter to the Comptroller of the Navy from the Director of the Naval Research Laboratory requested authority to implement the whole-dollar accounting concept. The second letter from the Comptroller of the Navy authorized a year trial period to determine the applicability based on actual experience. The third letter from the Naval Research Laboratory a year later reported a successful operation.

1 July 1955

3000-60/55 EHB:agg

From: Director, Naval Research Laboratory

to: Comptroller of the Navy

Via: Chief of Naval Research (Code 510)

Subject: "Centless" accounting procedures applied to the records of the Naval Research Laboratory, request for permission to utilize

Encl: (1) Illustrative cost summary: IBM technique

1. In order to utilize the advantages of the most modern procedures of business-type machine accounting, to present cost and financial statements in more easily readable form, and to effect maximum savings in processing of accounting records and statement presentation, the Office of Comptroller of the Naval Research Laboratory has completed a study of the most feasible application of "centless" accounting to the record functions.

2. It is proposed to effect "centless" accounting at the point of summarization of the weekly details in labor, material, and other cost in the machine accounting process; and at the point of summarization in the monthly detail of overhead application, leave accrual, and income accrual, also by machine accounting process.

For illustrative purposes, a sample register of a weekly per diem labor summary by which the conversion from detail actual to "centless" summary will be accomplished, is attached as enclosure (1).

3. By effecting the conversion at this initial stage in the accounting process, the two digits removed will relieve two counters in the IBM operation for each stage of processing. The subsidiary cost and income ledgers and general ledger controls of cost and income will likewise be relieved of the two digits. It is proposed to maintain a single cost account within the functions of the Comptroller to which the pennies differences developed in the rounding-off technique will be debited or credited. A single card for each register, cost or income, will be produced from the small difference between the rounded-off total of summaries and the actual total of details, this card representing the debit or credit to the single account. All processes will remain the same as presently operating in the accounting system, with the exception that in the multitude of operations in the subsidiary ledgers, summarizing registers, postings to control accounts, and cost reports, the two digits representing cents will have been eliminated, and the one additional account to which the differences will be debited or credited will be added to the Comptroller's functions.

4. The savings anticipated in such a system, and amply proven by the experience of private industry by this technique, are as follows:

a. Two digits of machine accounting will be saved in all of the subsidiary records, relieving the two counters in each field of the machines in which the money values are registered.

b. Two digits in each field of the cost reports: the Job Order Status Reports and Functional Status Reports, for examples, will be saved for each money column in the reports, relieving that many counters in the machine registers. In these two reports the saving of machine capacity will be eight counter positions, allowing for better machine utilization than at present.

c. Readability of the reports will be increased, making them an easier tool for the purpose for which designed: the indication of progress by classification of expenditure against the budget planning.

d. Readability of monthly Financial Statements will be increased, making them not only a more usable tool for management but also increasing the acceptability of their use by reviewing officials.

e. Savings in labor and material in statement preparation will be effected. Forms which at the present time require larger than standard 8" x 10½" pages for preparation because of multi-columnar data will be contained on the standard page without crowding. Preparation and typing of the Statements will be more easily accomplished, effecting a saving in labor cost on this

operation. In this regard, it should be noted that the cents represent three digits for each column of figures since the decimal point represents one digit in the typing format.

5. It will be recognized that the asset and liability accounts of the General Ledger will not be affected: costs will be reflected in even dollars, with the net cents balancing to the liability involved recorded in the account under the Comptroller as described in paragraph 3 above; income will be reflected in even dollars with the net cents balancing to the asset involved in like manner. Since the cost reports will be presented in "centless" format, it is anticipated that the abstracting of the balance sheet items in the Financial Statements will be rounded-off to even dollars for presentation purposes.

6. Permission to effect the program of "centless" accounting as herein presented, effective with the operations of July, 1955, is therefore requested.

S. M. TUCKER

E. H. BREED
By direction

DEPARTMENT OF THE NAVY
OFFICE OF THE COMPTROLLER
WASHINGTON 25, D. C.

IN REPLY REFER TO

NCA134

20 JULY 1955

From: Comptroller of the Navy
To: Director, Naval Research Laboratory
Via: Chief of Naval Research (Code 510)

Subj: "Centless" accounting procedures applied to the records of the Naval Research Laboratory; request for permission to utilize

Ref: (a) NRL ltr 3000-60/55 EHB:agg of 1 Jul 1955 with 1st end. ONR:510:HH:dod ser 15527 of 5 Jul 1955
(b) Telcon. between E. H. Breed NRL Compt. and Martin E. Finney (NCA134) of 13 Jul 1955

1. Reference (a) requests approval of "centless" accounting procedures at NRL effective with the operations for July, 1955, based upon the procedures and savings described therein.

2. From references (a) and (b) it is understood that the adoption of "Centless" accounting at NRL would involve the following procedures:

a. Insofar as costs are concerned, "centless" accounting would be effected, by rounding to the nearest dollar, at the time EAM Summary Cards are punched (i.e., weekly for labor, material and other costs; and monthly for leave accrual and applied overhead). Thereafter, all costs would be carried in even dollars in the Subsidiary Cost Ledger and the Job Orders in Progress Subsidiary Ledgers. The contra liability accounts would continue to be carried at actual value and the differences resulting from rounding would be debited or credited to a new general overhead cost account to be opened under the cognizance of Office of the Comptroller. At the end of each month the balance in this new account would be included as a factor in determining the amount of overapplied or under applied overhead costs as shown in the statement of retained earnings.

b. Inasmuch as all costs would be carried in even dollars in the Job Orders in Progress Subsidiary Ledgers, sponsors would be billed on this basis and Accounts Receivable - Sponsors and Income from Services Billed likewise would be carried in even dollars.

c. With the foregoing exceptions, all other general ledger accounts would continue to be carried at actual value. However, these balances would be rounded to the nearest dollar at the end of each month, for presentation purposes, in preparing the balance sheet and supporting financial statements.

NCA134

Subj: "Centless" accounting procedures applied to the records of the Naval Research Laboratory; request for permission to utilize

3. From references (a) and (b) it is understood also that significant savings are anticipated if the foregoing "centless" accounting procedures are adopted. A number of EAM counter positions would be relieved, thereby improving machine utilization. Savings in labor and material would be effected in the preparation of monthly financial and cost statements. The adoption of the procedures would result also in improved readability in various internal EAM reports and in the monthly financial and cost statements.

4. In view of the anticipated benefits, provisional approval of the foregoing procedures is hereby granted, on an interim basis, subject to the following conditions:

a. "Centless" accounting for costs will be effected, by rounding to the nearest dollar, at the time EAM Summary Cards are punched, as described above in subparagraph 2a.

b. The NRL Comptroller will establish the abovementioned new general overhead cost account, with appropriate account number and title, for the purpose of accumulating the net differences resulting from the rounding of costs.

c. The entries in this new account will be reviewed personally by the NRL Comptroller at the end of each month, to assure that the account is being used properly and that the balance in the account is not excessive. !!

d. The balance in the new account will be shown separately in the monthly financial and cost statements. The entries to the account for the current month, and fiscal year to date, will be summarized and commented upon to the extent required. ??

e. The general ledger balances will be rounded to the nearest dollar at the end of each month in the fiscal year except June, for presentation purposes, in preparing the balance sheet and supporting statements. In this manner, interim financial statements will be stated in even dollars but the final balance sheet and statement of retained earnings at the end of each fiscal year will be stated in exact amounts. Because of rounding costs at the EAM Summary Card level, however, it should be noted that Accounts Receivable-Sponsors, Job Orders in Progress, and the Statement of Income and Costs will be carried in even dollars.

f. If the adoption of the "centless" accounting procedures results in a satisfactory experience, at the end of fiscal year 1956 the NRL Comptroller will submit request for permanent approval, through channels, with appropriate justification, based upon such actual experience.

N. P. Cassidy

N. P. CASSIDY
Assistant Comptroller

100284

ONR:510:HH:vhd
Ser 17361
27 July 1955

FIRST ENDORSEMENT on Office of the Comptroller ltr NCA134 dtd 20 Jul 1955

From: Chief of Naval Research
To: Director, Naval Research Laboratory

Subj: "Centless" accounting procedures applied to the records of the Naval Research Laboratory; request for permission to utilize

1. Forwarded. The basic letter contains Comptroller of the Navy approval of the Laboratory's "Centless" accounting proposal, subject to certain conditions.

2. The Laboratory will observe all the conditions of the basic letter. In June 1956 the Laboratory will submit to this Office a request for permanent approval of "Centless" accounting together with a complete justification based upon operational experience. This justification should clearly indicate those processes where significant savings were experienced and the nature of such savings.

Wm. W. Edwards
Wm. W. EDWARDS
By direction

Copy to:
NCA134

NRL ... 55 08 21

3000

3000-83/56 MMD:djc

JUN 7 ~~1955~~ 1956

From: Director, Naval Research Laboratory
To: Comptroller of the Navy (Code NCA123)
Via: Chief of Naval Research (Code 510)

Subj: "Centless" accounting procedures applied to the records of the Naval Research Laboratory; request for permanent approval

Ref: (a) NavComp ltr NCA134 of 20 July 1955 with endorsement ONR:510:HH serial 17361 of 27 July 1955

1. In compliance with reference (a), the Naval Research Laboratory has operated with a system of "centless" accounting during fiscal year 1956. Through mechanized procedures in the EAM process, summary cards prepared from detail cards in each process of cost summarization contain the net "rounded" amount of the details being summarized. As reported in the Financial Statements of this Laboratory for the ten months operations through 30 April, dated 17 May, the net variance from actual costs which has been absorbed in this process is a credit of $599.31.

2. As required by reference (a), this variance has been controlled by debit or credit for each cost classification "rounding" operation in a special overhead cost account. These entries have been reviewed monthly, and reported in the comments to the Financial Statements.

3. Also as required by reference (a), the general ledger account balances which are not affected by the "rounding" process in the costs and cost presentations, have been "rounded" for statement presentation purposes. A cursory comparison of the Financial Statements of 30 April 1955 with those of 30 April 1956 should serve to illustrate the improvement in readability: on the Statement of Financial Condition, three columns of figures in the 1955 report are crowded using four inches of typing space; the same three columns in the 1956 report take a little over three inches allowing more adequate space for item explanation and with no crowding of the amounts. Further, the seven column statement: Summary Statement of Costs, and the four column statement: Statement of Budgetary Accounts, in the 1956 reports are easily contained on standard 8 X 10 1/2 inch paper by direct typing

3000-83/56 EHB:djc

Subj: "Centless" accounting procedures applied to the records of the Naval Research Laboratory; request for permanent approval

process, which could not have been done had the statements contained the additional digits.

4. Internal management reports generated by EAM have been increased in usefulness by the inclusion of additional data, using register fields which were otherwise uselessly preempted by the "cent" digits. These reports have also been rendered more useful to the program managers because of their increased readability.

5. In the mechanics of manual posting of ledgers and the typing of general statements, there have been saving of effort. During FY 1956, the Financial Statements of the Laboratory have been released on the average approximately four calendar days earlier than they were in FY 1955. A large part of this saving has been due to the facility of the mechanical operation under the "centless" accounting system.

6. For the above stated reasons, which summarize the satisfactory experience of "centless" accounting at the Naval Research Laboratory, it is requested that permanent approval be given to the Laboratory to maintain the accounts by this system.

E. H. BREED
By direction

APPENDIX C

EXAMPLES OF LETTERS REQUESTING ACCOUNTING ADJUSTMENTS OF LESS THAN A DOLLAR

The letters are concerned with internal Navy accounting adjustments. Consider the time and cost involved on the ships preparing the letter, with several copies, filing and mailing the letter. Then consider the time and cost of the Navy Supply Depot and the Navy Regional Finance Center consumed in research, accounting adjustments and correspondence.

U. S. S. CASTOR (AKS-1)
c/o FLEET POST OFFICE
SAN FRANCISCO, CALIFORNIA

AKS-1/WNH:bk
4410
Ser: 1420
25 JUL 1963

From: Commanding Officer, U.S.S. CASTOR (AKS-1)
To: Commanding Officer, Naval Supply Depot, Naval Base Newport, R. I.

Subj: Credit and Debit Invoices; request for

Ref: (a) BUSANDA Manual, Para. 25090-14
(b) NRFO, SAN DIEGO Summary for the month of May 1963

1. The below listed invoice(~~s~~) was/~~were~~ forwarded charging USS CASTOR AKS-1 (08551) operating funds. The material should have been invoiced to NSC, Oakland (228), Expenditure Account 51000, Class 224 for USS CASTOR AKS-1 (08551) in accordance with reference (a).

2. It is requested that a credit invoice be prepared to offset charges against the CASTOR OPTAR and debit invoice be prepared charging NSC, Oakland (228), 51000, Class 224, for USS CASTOR AKS-1 (08551). The number three and four copies of the debit invoice and a copy of the credit invoice must be forwarded to this activity to be used as accountable copies.

3. The following is submitted for information purposes:

Invoice/ Requisition	Stores Account	Money Value	Cog.	Group/Class
08551-3095-6438	13000	.10	2A	1005

5315 1A

4. Credit for the above should indicate FY'63 accounting information 1731804.2410 allotment 24005/63.

W. N. HADDOCK
By direction

Copy to:
COMSERVPAC
NRFO, SAN DIEGO

OPTIONAL FORM NO. 10

924

UNITED STATES GOVERNMENT

Memorandum

TO : Fiscal Officer, Naval Supply Depot, Newport, R. I.

DATE: [illegible]

FROM : Supply Officer, U.S.S. CORRY DDR 817

SUBJECT: Financial Follow-up, request for

Encl: (1) DD Form 1348, Financial Follow-up

1. Requisition number N5 117-3182-0019 was submitted by this ship during fiscal year 1964.

2. It is requested that a credit be issued in the amount of $0.29 for fiscal year 1963. It is further request that a charge of $0.29 be made against fiscal year 1964.

3. This is the second request for this transaction.

J. S. TIMKO
ENS, SC, USNR

SEND TO: 293 NSD, NEWPORT, R. I.

REQUISITION IS FROM: 52117 USS CORRY DDR 817

Financial Follow-Up

DOC IDEN	ROUTING IDEN	STOCK NUMBER	UNIT OF ISSUE	QUANTITY
AF1	NTZ	5910 643 8765	FA	1

DOCUMENT NUMBER	DEMAND	SUPPLEMENTARY ADDRESS	SIGNAL
N 52117 3182 0019	R	Y	A

FUND	DISTRIBUTION	PROJECT	PRIORITY
AB	1N		18

REMARKS

TYPE REQN	MO./YR.	$ AMOUNT	
1348	JUL '63	$0.29	3317

CHARGE TO FY: 64

WRONG ACCOUNTING DATA

CHARGE FOR SHIPMENT

PREVIOUS SHIPMENT

DUPLICATE SHIPMENT

MATERIAL RETURN

OTHER

DD FORM 1348 (4-62)

U.S.S. JOHN A. BOLE (DD-755)
FLEET POST OFFICE
SAN FRANCISCO, CALIFORNIA

[illegible]
7042.1A/2-213A
1[illegible] August 196[illegible]

From: Commanding Officer, U.S.S. JOHN A. BOLE (DD-755)
To: Commanding Officer, Naval Supply Depot, Newport, R. I.

Subj: Unmatched Expenditure Documents; request for information and/or correction

Ref: (a) [illegible] 7042.1A
(b) [illegible] Ltr DD-755:[illegible]:sj 7042.1A/2-213 dtd 31 Dec 1962

1. In accordance with reference ([illegible]) information is requested concerning the following listed expenditure document summarized by [illegible]RFO, San Diego for the month of Nov 1962.

Cog Symbol, [illegible] R[illegible]ITION No.	Fund Code	Issuing Activity	Amount	Remarks
3286078[illegible]	[illegible]B	298	.50	

[illegible] Deficiency item, Bureau funded

Request credit to 1721804.2410 3055/24001/62 FUND CODE BB
Request debit to 1721804.2420 [illegible]28/42325/62 FUND CODE PB

2. This is a second request. Your immediate attention will be appreciated, in order to clear this unmatched expenditure from ship's OPTAR.

J. T. Golden
J. T. [illegible]
By direction

Copy to:
[illegible]
[illegible]
[illegible], CAPLANT

11ND SHIPS 5216 [illegible] (1-61)

1906

U.S.S. OKANOGAN (APA-220)
FLEET POST OFFICE
SAN FRANCISCO, CALIFORNIA

IN REPLY REFER TO
[illegible]20/00: [illegible]
[illegible]
Ser: [illegible]

20 OCT 1963

From: Commanding Officer, USS OKANOGAN (APA-220)
To: Commanding Officer, Naval Supply Depot, Newport, Rhode Island

Subj: Summary Charge; request for correction

1. The following summary has been received and required correction is listed in paragraph 2.

Summary Month:	August 196[illegible] (F[illegible] [illegible])
Summarizing Activity:	298
Fund Code:	1D
Chargeable Activity:	1750
Stock Number:	1N5910-5[illegible]-[illegible]
Value:	$ .76
Document Number:	N01750-[illegible]-[illegible]

2. The above document is chargeable to Fiscal Year 1964. [illegible] appropriate debit and credit charges be prepared.

139

[illegible]. [illegible]. OLIVER

11ND-SHIPS-5218/106 (8 62)

U.S.S. LEXINGTON CVS-16
FLEET POST OFFICE
NEW YORK NEW YORK

CVS16/07
4400
Ser: [illegible]

24 JAN 1964

From: Commanding Officer, USS LEXINGTON (CVS 16)
To: Commanding Officer, U.S. Naval Supply Depot, Newport, Rhode Island

Subj: Unmatched expenditure document; request for information and/or correction

Ref: (a) NAVCOMPT Manual, Para 084150

Encl: (1) Listing of outstanding requisitions which not been summarized

1. In accordance with reference (a), enclosure (1) is submitted which reflects unsummarized receipts. Previous follow-ups have been submitted.

2. It is requested that action be taken to provide status on these requisitions which will facilitate reconciliation.

W. J. McCRORY
By direction

Date	Requ. No.	Stock Number	Qty	U/P	Ext. Price
	5324-				
	3-4-/3009	[illegible]-5935-240-3[illegible]	1	[illegible]	[illegible].50

[illegible]

ENCLOSURE (1)

3

U. S. S. LOFBERG (DD-759)
C/O FLEET POST OFFICE
SAN FRANCISCO, CALIFORNIA

DD759/PK/ym
7303/7330
Ser:

5 APR 19

From: Commanding Officer, U.S.S. LOFBERG (DD-759)
To: Commanding Officer, Naval Supply Depot, Naval Base, Newport, R. I. Attn: Fiscal Officer

Subj: Unmatched expenditures; request for correction of

1. Correction of erroneous charges is requested concerning the following listed expenditures summarized by NRFO, San Diego for September 196_:

COG SYMBOL, FSN REQUISITION NO.	FUND CODE	ISSUING ACTIVITY	AMOUNT	REMARKS
N6625-648-8932 32855372	BB	298	$22.50	See Note # 1
N5905-551-1405 32851482	BB	298	$ 1.45	See Note # 1
N5905-088-3739 32851758	BB	298	$ 1.40	See Note # 1
N5905-839-4640 32852024	BB	298	$ .35	See Note # 1
N5910-270-4853 32852317	BB	298	$ .60	See Note # 1
N5910-806-066_ 32853020	BB	298	$ .39	See Note # 1
N5910-819-8158 32853075	BB	298	$ 3.40	See Note # 1
N5910-823-1695 32853128	BB	298	$ .59	See Note # 1
N5920-284-7755 32853358	BB	298	$ .08	See Note # 1
N5935-518-7419 32853905	BB	298	$ 5.02	See Note # 1
N5935-681-3262 32854010	BB	298	$ 2.80	See Note # 1
N5935-707-7966 32854031	BB	298	$ 1.20	See Note # 1

DD759/PK/ym
7303/7330

5 APR 196

N5935-80?-7902 32?54057	BB	298	$4.20	See Note # 1
N5940-752-6723 3?854142	BB	298	$6.40	See Note # 1

Note # 1: Requisitions submitted to NSC, Oakland as "initial allowance of repair parts-charge BUSHIPS COSAL allotment" reference BUSHIPSINST 7323.2C Ch. IV. Charge: 1721804.2420 allotment number 42325 expenditure account number 13000 fund code PB and project code C02.

W. R. HARTMAN

Copy to:
COMCRUDESPAC
NRFO, SDIEGO

APPENDIX D

COMPTROLLER GENERAL DECISION

B-116194 OF OCTOBER 5, 1953

This Comptroller General's decision cites the fact that transactions between government agencies are considered as adjustments between appropriation and accounts, as compared to payments to private concerns where an overpayment could result in a financial loss to the United States.

1/90
112

RSF

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON 25

B-116194

October 5, 1953

Major J. M. Cook, Jr., USAF, Disbursing Officer
Through Director of Finance
Department of the Air Force
Washington 25, D. C.

Dear Major Cook:

By letter dated July 9, 1953, the Director of Finance forwarded to this Office your letter of March 26, 1953, with enclosures, requesting a decision as to whether the vouchers in payment of invoices Nos. 1-186, 1-463, 1-540, 2-1-564, 11-1-15, 11-1-16, 11-1-17 and 10-1-459, from the Panama Canal Company, which were attached to your letter, are proper for payment.

It is stated in your letter that the questions at issue on these vouchers fall into the following categories, which are considered in the order presented.

"a. Is it obligatory upon the Finance Officer to require that the Panama Canal Company furnish a detailed breakdown, by classification and actual rate of pay (in the case of labor), description and unit price (in the case of materials) and basis of determination of 'other' costs, on bills rendered by the Panama Canal Company?"

The answer to this question would depend upon the terms of the agreement. It must be remembered that both the Panama Canal Company, which was created a body corporate as an agency and instrumentality of the United States (section 245 of Title 2 of the Canal Zone Code) and the Department of the Air Force, are instrumentalities of the Federal Government. Payments by one to the other represent adjustments

between appropriation and fund accounts of Government agencies as distinguished from payments to private concerns where an excess payment might result in a financial loss to the United States. To require the Company to furnish the described detailed breakdown in all cases would increase overhead costs which, in turn, would be passed on to the Department of the Air Force. While it would seem preferable for a detailed breakdown to be furnished in some cases, especially where no or very little additional overhead costs would be incurred, such as where specific lists of materials and supplies were purchased or possibly in the construction of a facility, there are other cases where it would be costly, impracticable, and serve little purpose to supply details of the several elements of cost. Answering this question specifically, it is not obligatory upon the finance officer to require a detailed breakdown in the absence of a provision in the agreement to the contrary, assuming that it is determined that the overall services were rendered to the extent reimbursement is requested. See B-45238, November 17, 1944.

"b. Are transactions between the United States Air Force and the Panama Canal Company, a wholly-owned Government corporation as defined in the Government Corporation Control Act of 1945, governed by the Economy Act of 1932? * * * "

Since the Panama Canal Company was created as an agency and instrumentality of the Government, there seems no doubt that, as such, it is an "independent establishment of the Government" within the

B-116194

meaning of that term as used in section 601 of the Economy Act, 47 Stat. 417, as amended, 31 U.S.C. 686, notwithstanding its corporate form. The service here involved may have been performed under the authority of that act. However, such services also could have been rendered by the Company under the authority of section 249 of Title 2 of the Canal Zone Code to "make or furnish sales, services, equipment, supplies and materials * * * to agencies of the Government of the United States." Your question is answered accordingly.

"c. If the Economy Act applies, does the provision of such act that:

"'the amount to be paid shall be based on actual cost of supplies or services as agreed upon by the departments or agencies concerned'

"preclude the addition to direct costs by the Panama Canal Company of an overhead rate admittedly computed on a theoretical, hypothetical or estimated basis which includes, depreciation, interest and reserves and is intended to recover not only the operating costs of the corporation but the net cost of operating the Canal Zone Government as well? Would not payment of such an overhead charge be in contravention with Section 3678 of the Revised Statutes (Title 31, Sec. 628, U.S.C.) which requires that:

"'All sums appropriated for the various branches of expenditure in the public service shall be applied solely to the objects for which they are respectively made and for no others'?"

Regardless of whether the services were rendered under section 601 of the Economy Act or section 249 of Title 2 of the Canal Zone Code, the Company would still be required to attempt to collect all of its costs, including a part of the cost of the Canal Zone Government.

Section 601 of the Economy Act provides for the recovery of "actual costs" as determined by the agencies and it has been held that that term "actual costs" includes, in addition to direct costs, the indirect cost proportionately allocable to such services. 22 Comp. Gen. 74. The legislative history of the act of September 26, 1950, Public Law 841, 81st Congress, which reorganized the Panama Railroad Company and renamed it the Panama Canal Company, makes it clear that the Company is required to be self-sustaining and to reimburse the United States Treasury for the cost of the Canal Zone Government. The Committee on Merchant Marine and Fisheries, House of Representatives, in its report, H. Rep. 2935, 81st Congress, on H. R. 8677 (enacted as Public Law 841) specifically noted the language in the Bureau of the Budget's report appearing in H. Doc. No. 460, as follows:

> " * * * Sales or services between divisions of the Company, or between the Company and the Canal Zone Government, should be charged as nearly as possible at the cost of producing such goods or services, excluding interest and the Company's share of the cost of civil government. Sales and services to all others, including Government agencies, should be at prices over cost which may reasonably be expected to cover, in the aggregate, the interest on the Government's investment and the Company's share of the expense of civil government and related activities."

In view thereof, it is believed that the cost, to be recovered by the Company, should be expected to cover, in the aggregate, the interest on the Government's investment and the company's share of the expense of civil government and related activities in addition to other costs. It apparently was contemplated that Government agencies be charged generally on the same basis as private concerns in this respect. Both

questions are thus answered in the negative, although this Office is not aware of what you refer to as "theoretical, hypothetical or estimated" basis for determining indirect costs.

"d. If applicable, does the Economy Act restrict the Panama Canal Company from submitting a firm bid when such transaction is in competition with privately-owned commercial organizations capable of furnishing the same supplies or performing the same services? In this connection, it has been evidenced in some cases that by awarding work to the Panama Canal Company, who submitted the lowest bid, the Air Force was charged a greater amount than would have been the case had the firm bid been accepted."

Section 601 of the Economy Act specifically provides that the transactions thereunder shall be on an "actual cost" basis as agreed upon between departments or agencies concerned, and it has been held that the methods of ascertaining the amount of the "actual cost" are primarily for determination by the agencies concerned. As long as the amount agreed upon results from a bona fide attempt to determine the actual cost and, in fact, reasonably approximates the actual cost, no objection to payment in the amount agreed upon will be made by the General Accounting Office. There undoubtedly are transactions where the "actual cost" may be determined in advance with a reasonable degree of certainty, and, in such cases, section 601 of the Economy Act would not preclude the submission of a firm bid by the performing agency. But a firm bid under that section would be precluded where the actual cost could not be ascertained in advance with a reasonable degree of certainty. Question d. is answered accordingly. However, it may be stated that the Panama Canal Company could make firm bids on materials, supplies or services to be furnished Government

agencies under section 249 of Title 2 of the Canal Zone Code, provided that the bid is in an amount expected to cover the costs of the material, supplies or services, including the interest on the Government's investment and the company's share of the expense of civil government and related activities.

"e. Again, if the Economy Act applies, does not the provision of such act as quoted in c. above infer that a bilateral, formal agreement should be entered into between the requisitioning and requisitioned agencies which would set out the manner of requisitioning and the prices to be charged?"

It consistently has been held that section 601 of the Economy Act contemplates that a written order or agreement in advance will be entered into by the responsible administrative officer of each of the departments or agencies. 13 Comp. Gen. 234, 15 id. 32; 24 id. 420. In answer to question e., it may be stated that the manner of requisitioning materials or supplies and the method of determining the actual cost undoubtedly are proper elements for inclusion in the required agreement.

"f. If the Economy Act does not apply to transactions with the Panama Canal Company, should the vouchering procedures applicable to regular commercial accounts apply, including mandatory audit of cost-reimbursement type transactions when necessary?"

Question f. is answered in the negative since, irrespective of whether the Economy Act is applicable, the payments are still between instrumentalities of the Government and represent mere adjustments between appropriations and fund accounts of Government agencies. It may be stated that the accounting system of the Panama Canal Company is now being revised, which, when completed, will provide a better basis

B-116194

for determining the cost of material, supplies and services furnished to Government agencies.

The vouchers enclosed in your letter, which are returned herewith, represent mere partial payments under the various contracts involved and are proper for payment, if it is determined that services have been rendered in accordance with the terms of the contracts to the extent reimbursement is requested and the certificate of the contracting officer is signed, except that the voucher in payment of invoices Nos. 10-1-459, 11-1-15, 11-1-16 and 11-1-17, should be in the amount of $4,434.35 instead of $4,434.25.

Sincerely yours,

Lindsay C. Warren

Comptroller General
of the United States

Enclosures

BIBLIOGRAPHY

Public Documents

Budget and Accounting Procedures Act of 1950, 64 Stat. 834, 31 U. S. C. 65, Sec. 113 (b).

U. S. Civil Service Commission. The Federal Career Service . . . Your Service, 1963.

U. S. Code Annotated. Title 31, Chapter 11, Section 686.

U. S. Navy Department. Bureau of Supplies and Accounts Manual, III, (February, 1946), Rev.).

________. Navy Budget Digest, Nav Exos P-1355, (December, 1963).

________. Navy Comptroller Manual, 3, Nav Exos P-1000, (April, 1952 Rev.).

________. Supply Management Problems - Part II, Supply Corps School NSCS 423-1, (December, 1963).

U. S. Title 26, Internal Revenue, (1954), Sec. 6102.

Books

Drucker, Peter F. The Practice of Management. New York: Harper and Brother, Publishers, 1956.

Financial Management in the Navy. Washington: Bureau of Naval Personnel, 1962.

Heckert, J. Brooks. The Analysis and Control of Distribution. New York: The Ronald Press Company, 1958.

Kohler, Eric L., and Wright, Howard W. Accounting in the Federal Government. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1956.

May, Florence A., and Klingman, Herbert F. Whole-Dollar Accounting. New York: Controllership Foundation, 1957.

Articles and Periodicals

Adams, L. F. "Centsless Accounting," American Business, (April, 1951), p. 38.

________. "Centsless Accounting," Credit and Financial Management, (April, 1950).

________. "Centsless Accounting," Office Management and Equipment, (November, 1951).

________. "The Practice of Penny Elimination," National Association of Cost Accountant's Bulletin, (April, 1950), pp. 957-966.

________. "This Accounting Eliminates Pennies: Cuts Cost," Business Management, (May, 1951), pp. 58-59.

"Airline Uses 'Penny Elimination' in 40 to 50 Currencies," The Controller, (March, 1954), pp. 132-133.

Archerd, Wayne R. "An Application of Whole Dollar Accounting," National Association of Cost Accountant's Bulletin, (January, 1952), pp. 617-628.

Barber, Raymond J., Jr. "Does Your Accounting Make Cents?," National Association of Cost Accountant's Bulletin, (September, 1947), pp. 26-35.

Barnard, E. S. "Whole-Dollar Accounting--An Application," National Association of Cost Accountant's Bulletin, (August, 1955), pp. 1704-1710.

Birkhold, Robert H. "Cents-Less Accounting," The Internal Auditor, (June, 1953), pp. 72-78.

________. "Cents-Less Accounting An Exchange of Ideas," The Internal Auditor, (September, 1953), pp. 73-74.

________. "Penny Elimination," The Controller, (April, 1952), pp. 162-164.

Brinkley, Rawn. "Calculating to Significant Digits Only," National Association of Cost Accountant's Bulletin, (March, 1950), p. 899.

"Centsless Accounting," The Journal of Accountancy, (May, 1950), p. 372.

"Cents-less Accounting: An Exchange of Ideas," The Internal Auditor, (September, 1953), pp. 72-76.

"Centsless Bookkeeping Saves Dravo Money," Business Week, (February 11, 1950), p. 26.

Davis, Marion E. "Summary of Centsless Accounting," Woman C.P.A. (August, 1959), pp. 6-8.

Dillon, John H. Review of Management of the Department of the Navy, (Washington, D. C.: Navy Department, 1962).

"Dropping of Cents," Canadian Chartered Accountant, (January, 1942), p. 2.

"Elimination of Cents," The Journal of Accountancy, (August, 1937), p. 92.

Ford, F. W. "Penny Elimination," Office Equipment News, (August, 1955), pp. 23-25.

Freeman, E. Steward. "No Sense in Cents," The Journal of Accountancy, (November, 1941), p. 455.

Frost, James B. "Program for Converting to Whole-Dollar Accounting" National Association of Accountants Bulletin, (August, 1961), pp. 69-70.

Gilmaster, Douglas K. "Cents-less Accounting Makes Sense," Canadian Chartered Accountant, (October, 1956), pp. 307-310.

Greaney, E. J. "Elimination of Cents," The Journal of Accountancy, (November, 1937), pp. 299-300.

Harriman, John. "Goodby Pennies--Business Considering Dollar Policy to Eliminate Cents," Boston Sunday Globe, (March 14, 1954), p. D-1.

Hicks, Paul I. "Experience with Significant Digit Accounting," Hospital Accounting, (October, 1960), p. 15.

Horschler, Paul J. "Eliminate Pennies--Save Dollars," National Association of Accountants Bulletin, (January, 1960), pp. 57-61.

Horschler, Paul J. "Eliminate Pennies--Save Dollars," National Public Accountant, (March, 1960), pp. 4-6.

Jordan, E. C. "Penny Elimination in Accounting Records: A Case Report," The Controller, (May, 1952), pp. 222-229.

Joynt, R. L. B. "Penny-wise Accounting," Canadian Chartered Accountant, (March, 1953), pp. 121-125.

Martin, Ralph A. "Where and How to Save Clerical Cost," Controlling Office Production, No. 140, (New York: American Management Association, 1955).

McCue, C. B. "Centsless Accounting," Whole-Dollar Accounting, (New York: Controllership Foundation, 1957), pp. 319-324.

"No Cents May Save Us Dollars," The Bureau of Supplies and Accounts Newsletter, (February, 1951), p. 8.

"No Sense in Cents," The Journal of Accountancy, (October, 1941), p. 292.

"Others Say 'Cents-less is Sensible,'" Management Methods, (June, 1954), p. 27.

"Penny Elimination," The Internal Auditor, (June, 1950), p. 20.

"Pennyless Bookkeeping Solves Accounting Delays," American Business, (November, 1954), p. 13.

Seawell, Vann L. "Significant--Digit Accounting for Hospitals--Cents or Non-cents?," Hospital Accounting, (May, 1959), pp. 16-17.

Shick, F. A. "The Elimination of Cents from Accounting Records," The Journal of Accountancy, (November, 1941), pp. 400-403.

"Source Data Automation Program," Data Processing for Management, (September, 1963), pp. 36-39.

"Whole-Dollar Accounting Studies," The Controller, (December, 1957), p. 592.

Woodbridge, John S. "How Cents-less Accounting Saves Money for Pan American," Management Methods, (June, 1954), pp. 21-22.

Other Sources

Interview with E. H. Breed, Comptroller, Naval Research Laboratory, Washington, D. C., April 28, 1964.

Interview with Edward J. Mohoney, Associate Director, Accounting and Auditing Staff, General Accounting Office, February 12, 1964.

Interview with John W. Moore, Counselor, General Accounting Office, February 12, 1964.

Interview with Robert L. Rasor, Associate Director, Accounting Auditing Staff, General Accounting Office, February 12, 1964.

Interview with Benjamin Wostein, Director of Postal Rates Division, U. S. Post Office Department, February 7, 1964.

Letter from J. W. Askew, Controller of the Post Office Department to Walter E. Dewey, January 14, 1954.

Letter from C. B. McCue, Treasurer-Controller, Minneapolis Star and Tribune, Minneapolis, Minnesota, March 30, 1964.

Letter from Robert S. McLaren, Assistant Controller, Dravo Corporation, March 12, 1964.

Letter from Arthur J. Points, Controller, Ashland Oil and Refining Company, Ashland, Kentucky, March 16, 1964.

Letter from H. J. Sanborn, Administrative Assistant, Pan American World Airways, March 17, 1964.